- A3445-U 488 -

Industry Statistics: 1987

Battery Council International

ACKNOWLEDGEMENT

The contributions we received from the following United States and International organizations are greatly appreciated. We wish to extend credit to these sources for their assistance in the construction of the **1987 INDUSTRY STATISTICS.**

AMERICAN BUREAU OF METAL STATISTICS, INC.
ASOCIACION NACIONAL DE FABRICANTES DE ACUMULADORES, A.C.
AUSTRALIAN BUREAU OF METAL STATISTICS
AUSTRALIAN LEAD DEVELOPMENT ASSOCIATION
EUROBAT
JAPAN STORAGE BATTERY ASSOCIATION
LEAD INDUSTRIES ASSOCIATION, INC.
MOTOR VEHICLE MANUFACTURERS ASSOCIATION OF THE UNITED STATES
R.L. POLK & COMPANY
STATISTICS CANADA
U.S. DEPARTMENT OF COMMERCE, BUREAU OF CENSUS
U.S. BUREAU OF MINES
U.S. FEDERAL HIGHWAY ADMINISTRATION
WORLD BUREAU OF METAL STATISTICS

The Battery Council International
extends sincere appreciation to
GNB Incorporated for their assistance
in producing the 1987 Industry Statistics.

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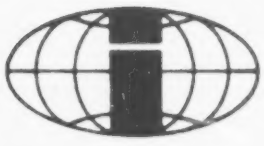
1987

BATTERY COUNCIL INTERNATIONAL INDUSTRY STATISTICS



111 East Wacker Drive Chicago, Illinois 60601

Industry Statistics: 1987

This publication, prepared under the direction of the Battery Council International Product Information Committee, is a culmination of pertinent statistics on the automotive battery industry.

Industry Statistics: 1987 is the fourth consecutive book devoted entirely to battery industry statistics and this year presents additional battery statistics from Mexico which enhance our International Section.

This year's publication closely follows the format of the *1984 Statistics Annual* in four major sections. The first section mainly consists of BCI-generated battery statistics. The remaining sections address the international battery market as well as the automobile and lead industries. Together, these four areas of information will provide the background necessary to better understand industry trends.

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1986 – THE BATTERY INDUSTRY

Battery Shipments

- S.L.I. batteries by far constitute the largest portion of the North American Battery Industry. U.S. total shipments of S.L.I. batteries reached the highest level at 75.7 million in 1986.
- U.S. replacement batteries in the past ten years have had very steady growth culminating in 1986 with more than 60 million units shipped, accounting for nearly 80% of the S.L.I. battery shipments.
- Quarterly shipments of U.S. automotive replacement batteries continue to peak every year during the fourth quarter. Statistics reveal more than 19 million replacement batteries were shipped in the fourth quarter of 1986 indicating the strongest performance in history since the last record high of 18.9 million in 1983's final quarter. Most of the volatility in shipments occurs in the first and fourth quarter.
- The growth of U.S. replacement battery shipments has been positively influenced by the following factors:
  1) Growth of cars in use has increased 2% to 3% each year since 1983;
  2) Average battery life is shortened by extreme U.S. climate variations and by the increased use of batteries in applications for which they were not designed;
  3) According to R.L. Polk & Co., the average age of the car fleet has increased from 4.8 years in 1970 to 6.8 years in 1985.
- Original equipment battery shipments have had tremendous variability over the past 15 years. This variability has been related to the health of both the U.S. economy and U.S. car industry, and to government policy concerning new car imports. U.S. original equipment battery shipments have fluctuated near the 13 million mark from 1984 through 1986, maintaining 17% to 18% of the total market.
- Japan's automotive battery shipments increased significantly to its highest point of 23.3 million in 1986. However, Japanese motorcycle battery shipments have decreased from their peak of 7.5 million in 1981 to 5.3 million in 1986.

Import/Export

- Exports of 12 volt and 6 volt automotive batteries rose 23.8% to a new high of 2.6 million in 1984, and have dropped back to approximately two million in 1985 and 1986.
- Imports have increased rapidly, 3-1/2 times over a four-year period, although they still account for a small portion of the U.S. market.

Trends & Technology

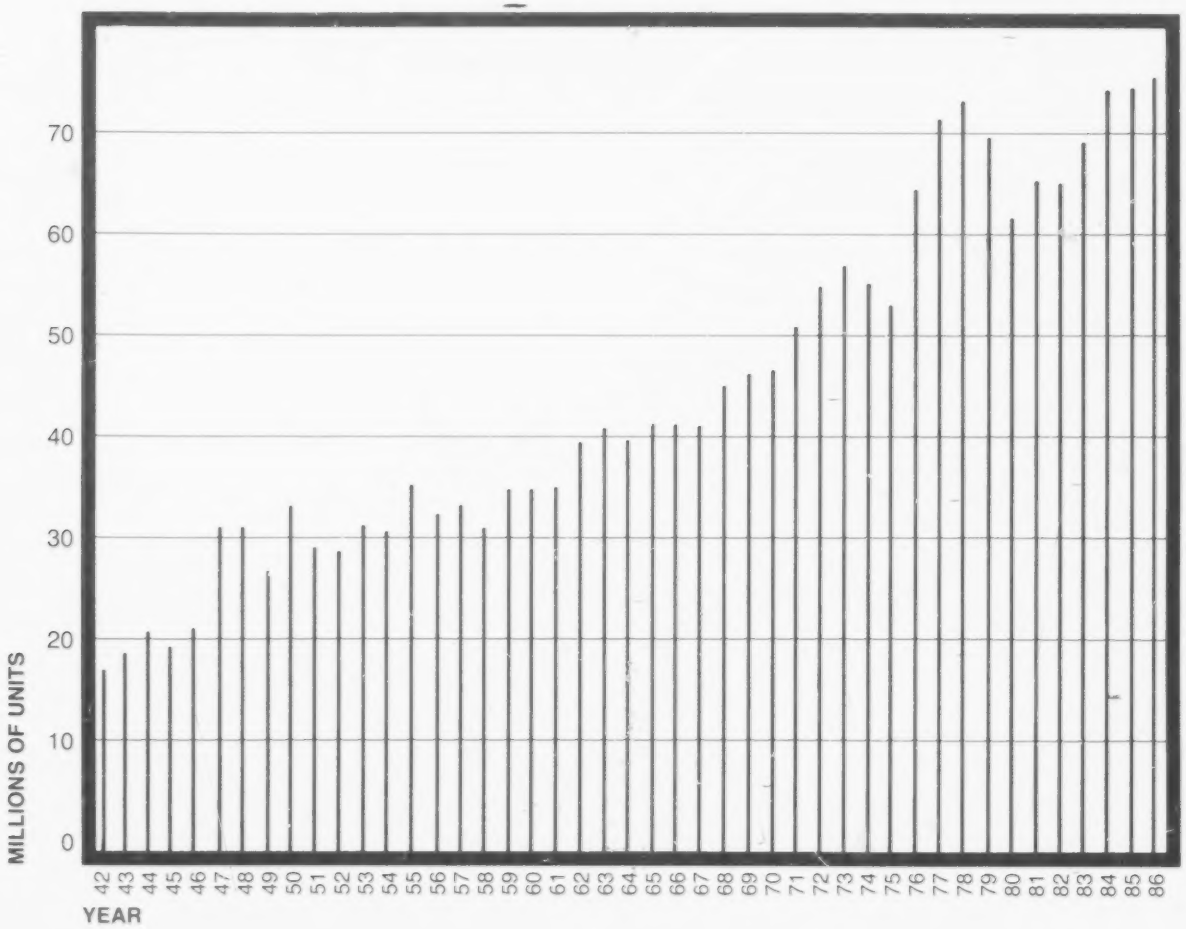
- Special classification batteries (golf cart, marine, special tractor and general utility) have grown in the past several years. The marine battery segment, specifically, has continued to grow at approximately 200,000 units per year from 1.4 million in 1982 to more than 2.4 million in 1986, reflective of the increase in leisure time available. Similarly, increases in the variety of small engine products designed to simplify homelife such as lawnmowers and snow blowers have prompted the growth rate of general utility batteries.
- Distribution channels for replacement batteries have shown significant change in the Battery Specialist sector, increasing from 24.3% in 1980 to 31.6% in 1986. The Mass Merchandiser segment however, has been relatively stable near 35% in the 1980's.
- Two important technological advances during the past decade have been reducing or eliminating antimony from lead alloys used in the grid metal and greater quality control capabilities in producing lead-acid batteries in the U.S.

Source: BCI 1985 & 1986 Conventions, "1985 & 1986 Battery Shipment Review," by Richard L. Amistadi, The Doe Run Co., St. Louis, Missouri.

U.S. TOTAL SHIPMENTS* OF S.L.I. BATTERIES

MILLIONS OF UNITS

1942	16.5	**1951**	29.7	**1960**	34.4	**1969**	46.4	**1978**	73.2
1943	18.1	**1952**	28.4	**1961**	35.2	**1970**	46.9	**1979**	69.3
1944	20.4	**1953**	31.3	**1962**	39.0	**1971**	50.6	**1980**	61.7
1945	19.0	**1954**	30.8	**1963**	41.0	**1972**	55.5	**1981**	65.5
1946	21.0	**1955**	35.4	**1964**	39.1	**1973**	57.1	**1982**	64.6
1947	31.2	**1956**	32.3	**1965**	40.8	**1974**	55.6	**1983**	69.0
1948	31.0	**1957**	33.4	**1966**	41.6	**1975**	52.9	**1984**	74.7
1949	26.2	**1958**	30.6	**1967**	40.2	**1976**	64.1	**1985**	74.4
1950	32.9	**1959**	34.4	**1968**	45.0	**1977**	70.7	**1986**	75.7

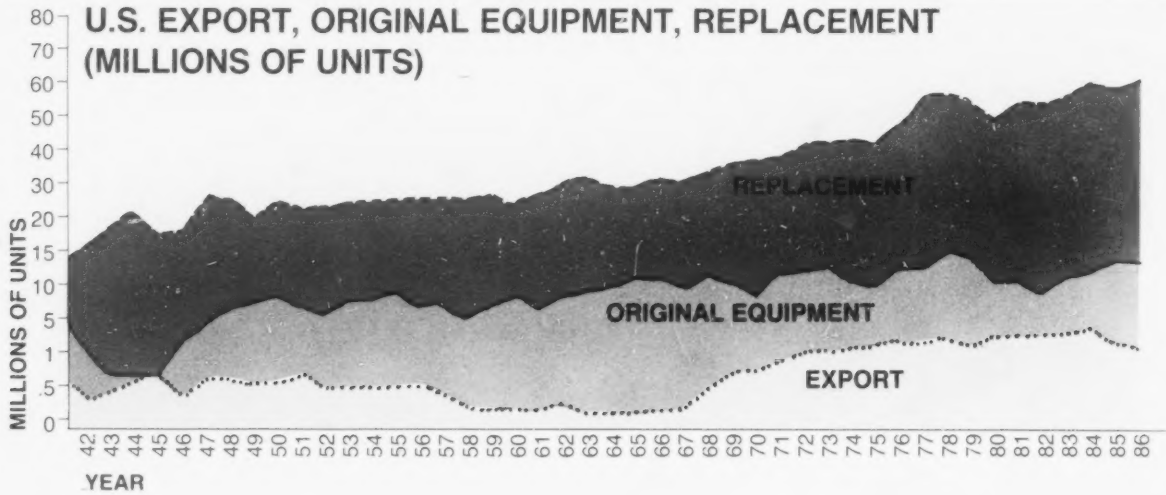


Source: BCI, United States Dept. of Commerce - Bureau of Census, Report EM546

*Shipments represent rounded sum of replacement, original equipment, and export shipments.

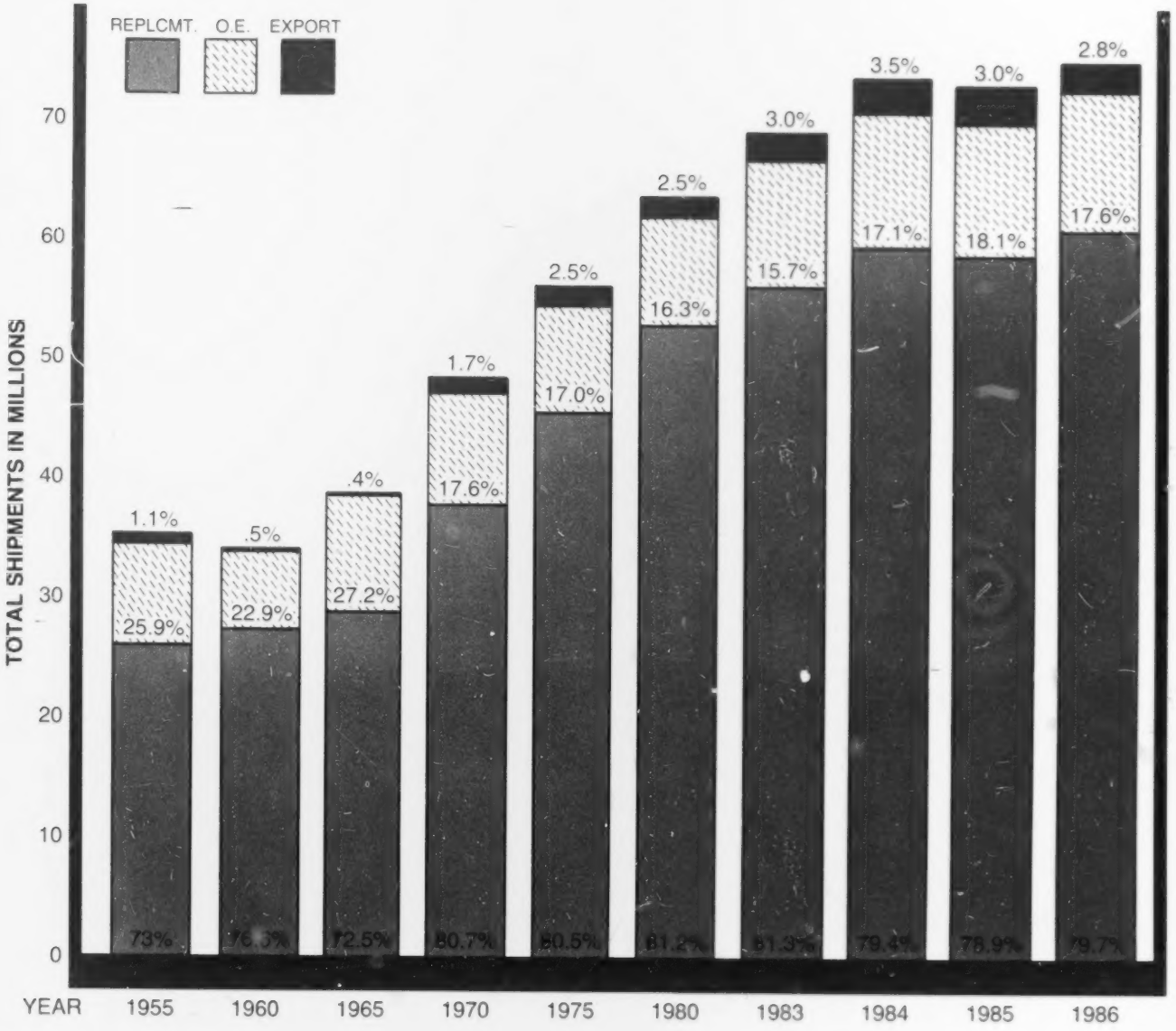
BREAKDOWN OF U.S. BATTERY SHIPMENTS (1942-86)

YEAR	REPLACEMENT	ORIGINAL EQUIPMENT	EXPORT 12V, 6V	YEAR	REPLACEMENT	ORIGINAL EQUIPMENT	EXPORT 12V, 6V
	MILLIONS OF UNITS			1964	29.6	9.3	.2
1942	15.2	1.0	.3	1965	29.5	11.1	.2
1943	17.0	.7	.4	1966	31.1	10.3	.2
1944	19.1	.7	.6	1967	31.0	9.0	.2
1945	17.6	.7	.7	1968	33.8	10.7	.5
1946	17.5	3.1	.4	1969	35.5	10.1	.8
1947	25.8	4.8	.6	1970	37.9	8.2	.8
1948	25.1	5.3	.6	1971	39.1	10.6	.9
1949	19.4	6.3	.5	1972	43.2	11.3	1.0
1950	24.4	8.0	.5	1973	43.5	12.6	1.0
1951	22.2	6.8	.7	1974	44.4	10.1	1.1
1952	22.5	5.5	.4	1975	42.6	9.0	1.3
1953	23.6	7.3	.4	1976	49.2	13.4	1.5
1954	23.8	6.6	.4	1977	54.6	14.7	1.4
1955	25.8	9.2	.4	1978	56.4	15.2	1.6
1956	25.0	6.9	.4	1979	53.7	14.4	1.2
1957	25.9	7.2	.3	1980	50.1	10.0	1.6
1958	25.3	5.1	.2	1981	53.6	10.0	1.9
1959	27.5	6.7	.2	1982	54.2	8.4	2.0
1960	26.3	7.9	.2	1983	56.1	10.8	2.1
1961	28.3	6.7	.2	1984	59.3	12.8	2.6
1962	30.5	8.2	.3	1985	58.7	13.5	2.2
1963	31.7	9.1	.2	1986	60.3	13.3	2.1



Sources: BCI, United States Dept. of Commerce - Bureau of Census, Report EM546
Shipment figures rounded.

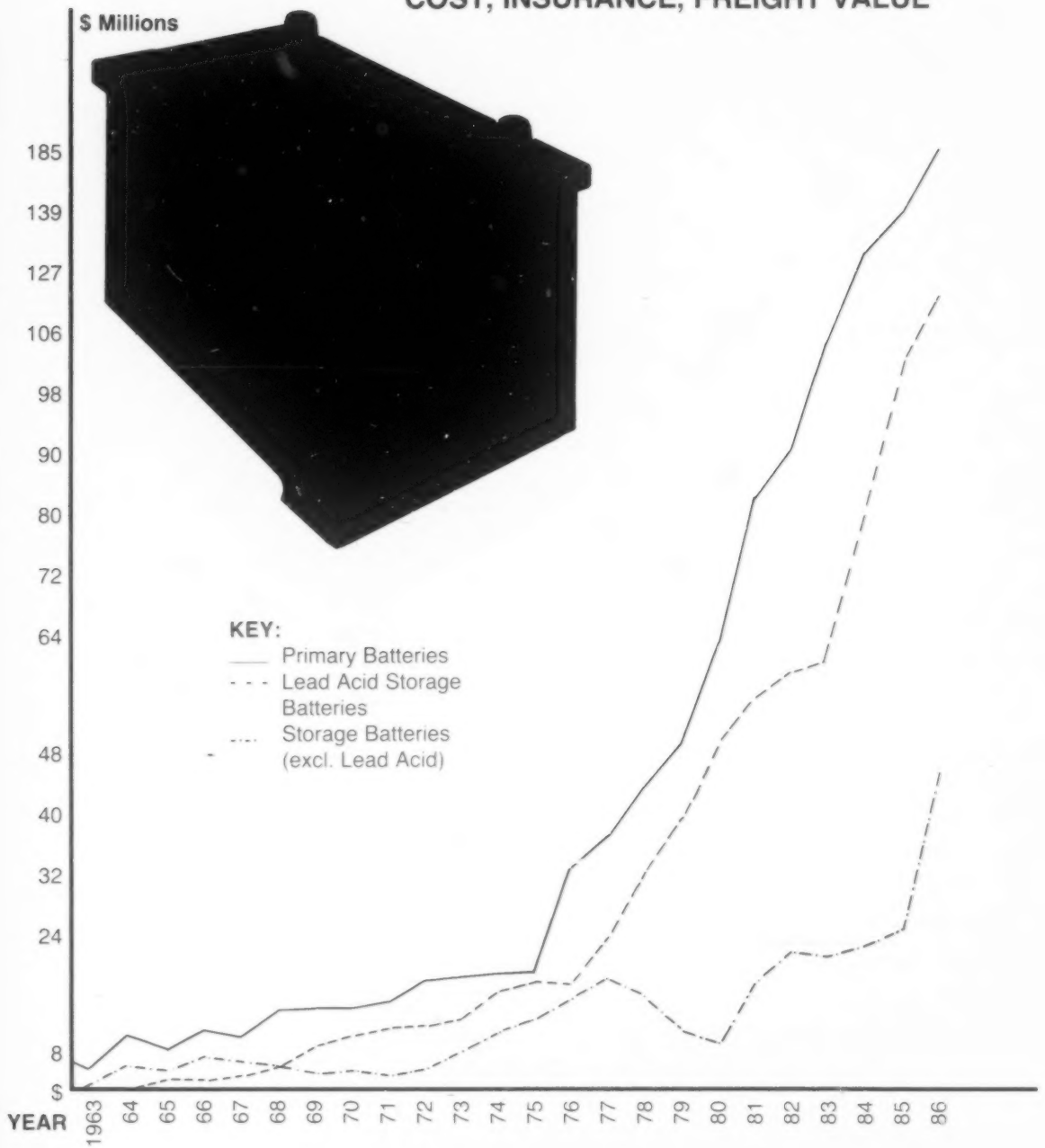
SHARES OF TOTAL U.S. BATTERY SHIPMENTS REPLACEMENT, ORIGINAL EQUIPMENT, EXPORT



Sources: BCI, United States Dept. of Commerce – Bureau of Census

U.S. BATTERY IMPORTS

COST, INSURANCE, FREIGHT VALUE*



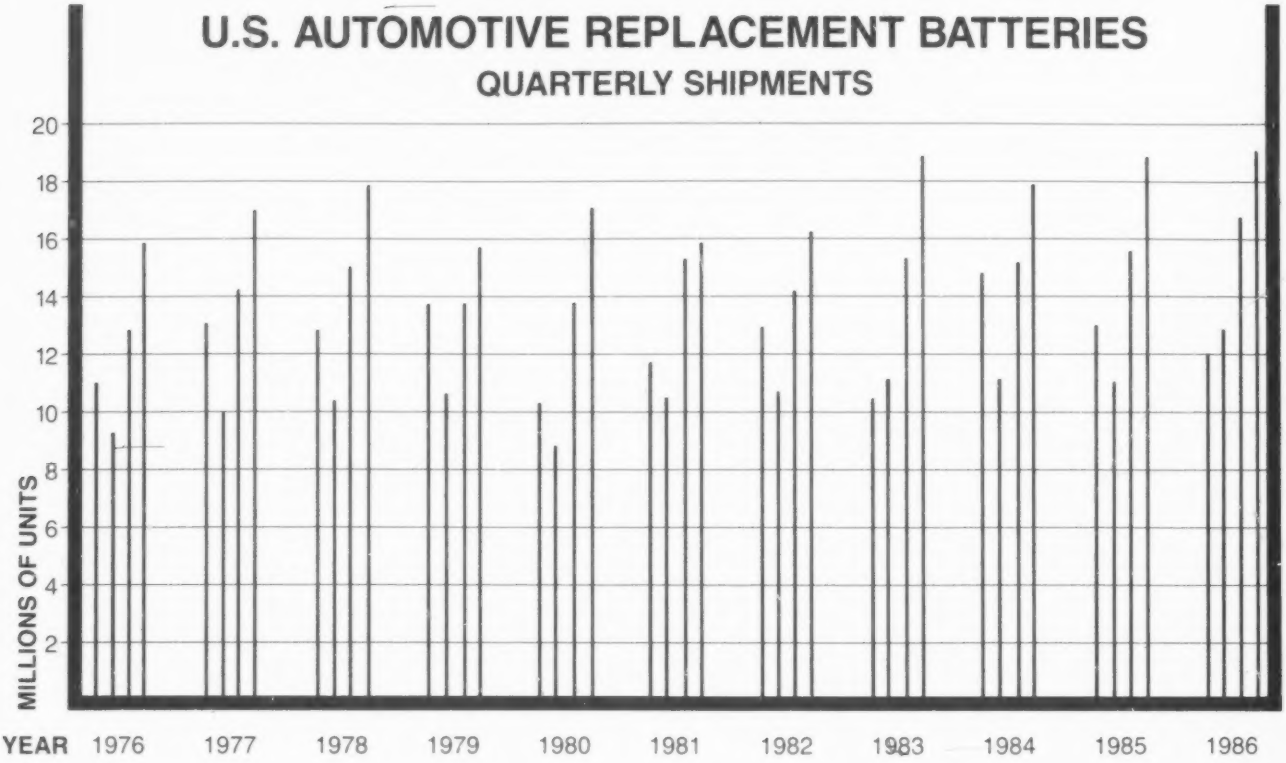
Source: United States Department of Commerce
Bureau of the Census
FT 135, U.S. General Imports and Imports for Consumption, Schedule A

*_ Cost, Insurance Freight Value represents the value of imports at the first port of entry in the U.S. _ CIF values are based on the purchase price and include all freight, insurance, and other charges (excl. U.S. import duties) incurred in bringing the merchandise from the country of exportation to the first port of entry in the U.S.

$-Current value of dollar for each year; not constant dollars.

U.S. AUTOMOTIVE REPLACEMENT BATTERIES

QUARTERLY SHIPMENTS



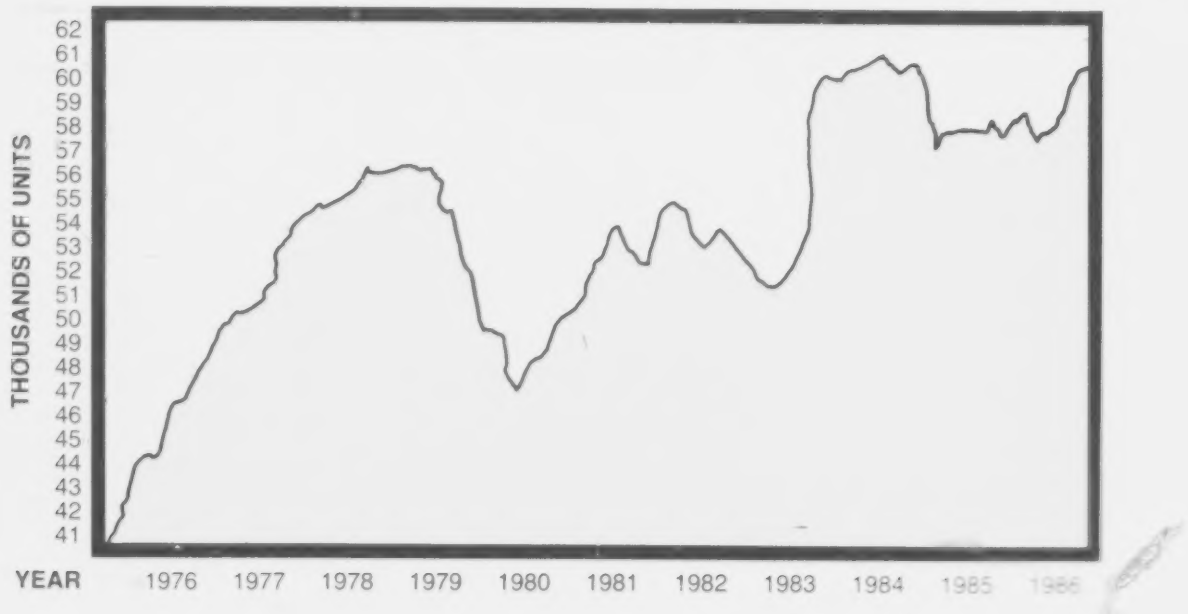
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
	MILLIONS OF UNITS										
1st QTR	11.2	13.1	12.9	13.7	10.3	11.7	13.0	10.5	14.8	13.0	12.0
2nd QTR	9.4	10.0	10.5	10.6	8.8	10.6	10.8	11.3	11.3	11.2	12.4
3rd QTR	12.7	14.3	15.1	13.7	13.8	15.4	14.2	15.4	15.3	15.6	16.8
4th QTR	15.9	17.2	17.9	15.7	17.2	15.9	16.2	18.9	17.9	18.9	19.1
YEARLY TOTAL	49.2	54.6	56.4	53.7	50.1	53.6	54.2	56.1	59.3	58.7	60.3

Source: BCI

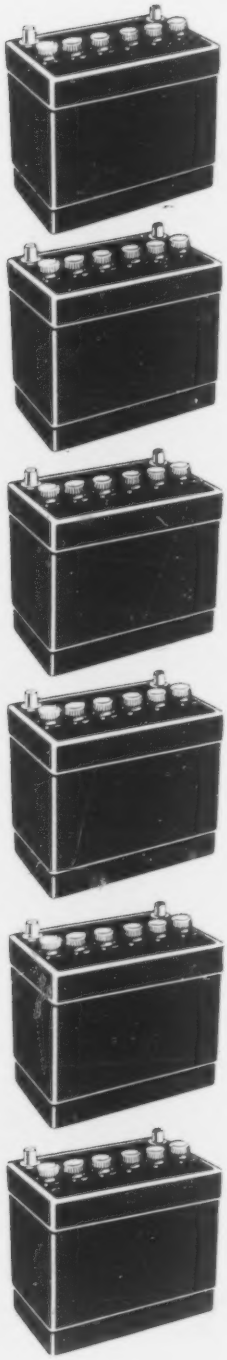
U.S. SHIPMENTS OF AUTOMOTIVE REPLACEMENT BATTERIES – 12 MONTH MOVING TOTALS

Thousands of Units

MONTH \ YEAR	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
JAN	43,771.8	49,818.6	54,128.9	57,043.0	52,240.6	51,024.9	53,674.7	53,025.0	58,895.8	57,426.7	58,866.8
FEB	44,698.8	50,495.2	54,318.8	57,066.1	51,207.2	51,352.1	54,395.7	51,826.6	60,099.0	57,697.8	57,833.2
MAR	45,260.0	51,121.4	54,347.1	57,158.8	50,335.9	51,486.4	54,903.4	51,717.8	60,353.4	57,568.1	57,738.5
APR	45,468.8	51,314.3	54,450.6	57,204.2	50,018.0	51,932.5	55,054.3	51,615.5	60,214.7	57,692.9	58,332.2
MAY	45,658.9	51,737.9	54,601.5	57,107.5	49,424.1	52,655.4	55,150.2	51,751.6	60,253.0	57,675.1	58,834.4
JUN	46,517.6	51,726.8	54,783.7	57,242.3	48,642.6	53,264.8	55,132.1	52,143.9	60,391.6	57,515.2	58,884.1
JUL	46,939.7	51,754.2	54,936.4	57,182.2	48,524.0	53,776.8	54,724.3	52,429.2	60,472.7	57,593.3	59,472.3
AUG	47,407.3	52,498.4	55,104.3	56,961.8	48,061.4	54,490.5	54,196.1	52,779.7	60,749.5	57,575.2	59,782.1
SEP	47,481.6	53,294.0	55,569.5	55,966.8	48,665.0	54,845.8	53,936.6	53,333.8	60,344.1	57,763.4	60,086.6
OCT	47,801.3	54,041.2	55,951.2	55,423.7	49,015.1	54,798.1	53,377.5	54,222.1	60,130.3	58,164.0	60,288.1
NOV	48,579.6	54,183.2	56,448.9	54,917.5	49,190.0	54,105.7	53,946.5	55,089.6	60,110.3	57,713.5	60,824.3
DEC	49,202.9	54,600.7	56,389.4	53,746.3	50,063.2	53,597.9	54,214.5	56,104.8	59,332.5	58,683.6	60,306.0



Source: BCI



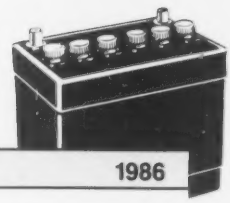
U.S. BATTERY SHIPMENTS

REPLACEMENT AND ORIGINAL EQUIPMENT SHARES BY PRODUCT CATEGORY (%'s)

	1982	1983	1984	1985	1986
PRODUCT CATEGORY	%R / %OE	%R / %OE	%R / %OE	%R / %OE	%R / %OE
Passenger Car, Light Commercial – 12 V	86/14	82/18	81/19	80/20	81/19
6 V	98/2	97/3	99/1	99/1	99/1
Heavy Duty Commercial 12 V	82/18	83/17	77/23	81/19	81/19
6 V	96/4	97/3	97/3	97/3	98/2
Special Tractor	96/4	96/4	95/5	96/4	98/2
Marine	99/1	100/0	100/0	100/0	99/1
General Utility	78/22	75/25	69/31	68/32	69/31
Golf Car	93/7	86/14	85/15	81/19	78/22

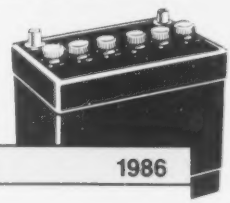
Source: BCI

UNITED STATES
REPLACEMENT BATTERY SHIPMENTS:*
PRODUCT CATEGORY (000's)



PRODUCT CATEGORY	1982	1983	1984	1985	1986
Passenger Car:					
12 Volt	44,207.8	45,080.0	47,354.5	46,685.6	47,682.1
6 Volt	1,460.7	1,282.7	1,234.0	1,095.0	960.8
Heavy Duty:					
12 Volt	2,002.9	2,379.6	2,757.6	2,766.0	3,031.1
6 Volt	1,719.7	1,705.0	1,775.2	1,656.8	1,557.5
Special Tractor	751.3	853.8	878.8	785.6	842.5
Marine	1,414.4	1,770.5	2,003.9	2,097.3	2,442.5
General Utility	1,156.2	1,395.7	1,477.2	1,591.4	1,748.4
Golf Car	866.2	915.0	1,175.7	1,270.9	1,303.3
Miscellaneous	255.7	329.7	260.2	324.1	315.6
Total	53,834.9	55,712.0	58,917.1	58,272.7	59,883.8

UNITED STATES
ORIGINAL EQUIPMENT BATTERY SHIPMENTS:
PRODUCT CATEGORY (000's)

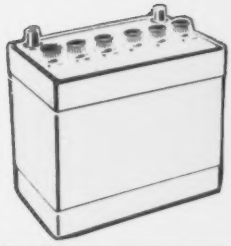


PRODUCT CATEGORY	1982	1983	1984	1985	1986
Passenger Car:					
12 Volt	7,384.5	9,576.6	10,936.0	11,656.9	11,320.1
6 Volt	31.2	34.5	12.3	12.1	7.7
Heavy Duty:					
12 Volt	451.1	499.9	838.2	667.0	716.0
6 Volt	80.9	44.7	52.5	42.6	33.8
Special Tractor	28.8	32.0	43.1	29.5	16.8
Marine	9.7	4.6	5.3	6.7	28.9
General Utility	319.5	473.8	669.7	748.1	778.0
Golf Car	67.6	150.2	208.1	303.6	370.7
Miscellaneous	0.0	0.0	0.0	0.0	0.0
Total	8,373.3	10,816.3	12,765.2	13,466.5	13,272.0

Source: BCI
Figures rounded
*Replacement figures - unindexed.

U.S. AUTOMOTIVE REPLACEMENT BATTERY SHIPMENTS TO CHANNELS OF DISTRIBUTION

Millions of Units



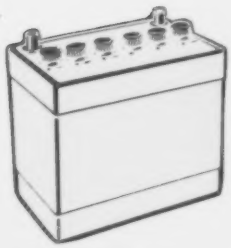
cont.

CHANNELS	YEAR						
	1973	1974	1975	1976	1977	1978	1979
GAS/OIL	5.4	5.3	4.1	4.6	5.3	4.8	4.5
TIRES/RUBBER	2.4	2.2	2.2	2.5	2.8	3.1	2.8
MASS MERCHANDISERS (Department Stores)	9.7	9.4	9.0	10.1	12.9	13.0	11.6
MASS MERCHANDISERS (Discount Stores)		1.0	1.8	2.0	2.4	2.6	2.4
MASS MERCHANDISERS (Auto Chains)	3.9	3.0	3.0	3.2	2.9	3.6	3.2
MASS MERCHANDISERS (Other)		1.2	1.2	1.3	1.7	1.7	1.6
FLEET OPERATIONS	.5	.3	.3	.4	.4	.4	.4
GOVERNMENT	NA	.2	.3	.3	.3	.3	.4
VEHICLE/EQUIP. MFG.	3.8	4.9	4.1	3.9	2.3	2.8	2.9
PARTS DISTRIBUTORS	7.6	10.2	7.8	10.5	11.9	11.0	11.1
BATTERY SPECIALISTS	7.2	4.6	6.1	6.9	8.6	10.4	10.2
OTHER	.8	1.4	1.0	1.7	1.3	1.5	1.5
TOTAL	41.3	43.7	40.9	47.4	52.8	55.2	52.6
Number of Companies Reporting	23	23	22	22	20	20	20

Source: BCI
Shipments based on the above number of reporting members.

U.S. AUTOMOTIVE REPLACEMENT BATTERY SHIPMENTS TO CHANNELS OF DISTRIBUTION

Millions of Units



YEAR

CHANNELS	1980	1981	1982	1983r	1984	1985	1986
GAS/OIL	3.3	3.1	2.7	2.2	2.4	2.1	2.1
TIRES/RUBBER	2.2	2.3	2.2	2.7	2.5	2.2	2.1
MASS MERCHANDISERS** (Department Stores)	10.1	11.0	11.6	12.7	13.1	13.2	13.5
MASS MERCHANDISERS** (Discount Stores)	2.8	3.6	2.7				
MASS MERCHANDISERS (Auto Chains)	3.0	3.1	3.6	4.4	5.1	5.4	6.2
MASS MERCHANDISERS (Other)	1.6	1.6	1.6	2.1	2.4	1.9	1.8
FLEET OPERATIONS	.3	.3	.3	.3	.4	.3	.3
GOVERNMENT	.4	.3	.3	.5	.4	.6	.8
VEHICLE/EQUIP. MFG.	2.2	2.4	3.1	2.4	2.4	2.1	2.3
PARTS DISTRIBUTORS	9.9	9.8	8.8	9.3	10.9	10.5	10.4
BATTERY SPECIALISTS	12.7	14.0	15.7	17.7	18.1	18.2	18.5
OTHER	.3	.6	.6	.5	.6	.5	.6
TOTAL	48.8	52.1	53.2	54.8	58.3	57.0	58.6
Number of Companies Reporting	20	21	20	20	21	21	19

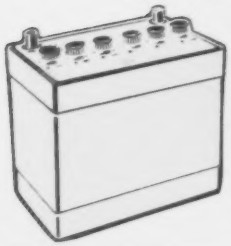
Source: BCI

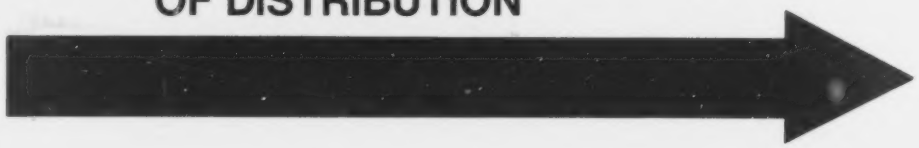
Shipments based on the above number of reporting members.

**Beginning 1983, Shipments for Mass Merchandisers Department and Discount Stores are combined into one figure.

r -1983 figures revised.

PERCENTAGES* OF U.S. AUTOMOTIVE REPLACEMENT SHIPMENTS TO CHANNELS OF DISTRIBUTION





CHANNELS

	YEAR						
	1980	1981	1982	1983r	1984	1985	1986
GAS/OIL	6.8	6.0	5.1	3.9	4.2	3.7	3.5
TIRES/RUBBER	4.5	4.4	4.1	4.9	4.3	3.9	3.6
MASS MERCHANDISERS** (Department Stores)	20.7	21.1	21.9	23.2	22.5	23.0	23.0
MASS MERCHANDISERS** (Discount Stores)	5.7	6.9	5.1				
MASS MERCHANDISERS (Auto Chains)	6.1	6.0	6.8	8.1	8.7	9.4	10.6
MASS MERCHANDISERS (Other)	3.3	3.1	3.0	3.8	4.2	3.4	3.1
FLEET OPERATIONS	.6	.6	.6	.6	.7	.6	.5
GOVERNMENT	.8	.6	.5	.9	.7	1.1	1.4
VEHICLE/EQUIP. MFG.	4.5	4.6	5.8	4.3	4.2	3.7	4.0
PARTS DISTRIBUTORS	20.3	18.8	16.6	17.0	18.6	18.5	17.7
BATTERY SPECIALISTS	26.0	26.9	29.5	32.3	31.0	31.8	31.6
OTHER	.6	1.2	1.0	1.0	1.0	.8	1.0
TOTAL	99.9%	100.2%	100.0%	100.0%	100.1%	99.9%	100.0%
Number of Companies Reporting	20	21	20	20	21	21	19

Source: BCI

*Percentages rounded.

**Beginning 1983, shipments for Mass Merchandisers Department and Discount Stores are combined into one figure.

r – 1983 figures revised.

PRIVATE BRANDS VS. MANUFACTURER'S OWN (%'s)

U.S. BATTERY SHIPMENTS* TO CHANNELS OF DISTRIBUTION

CHANNELS	YEAR								
	1978 PB/MB	1979 PB/MB	1980 PB/MB	1981 PB/MB	1982 PB/MB	1983r PB/MB	1984 PB/MB	1985 PB/MB	1986 PB/MB
GAS/OIL	87/13	86/14	82/18	87/13	88/12	90/10	79/21	83/17	83/17
TIRES/RUBBER	77/23	77/23	67/33	84/16	85/15	89/11	86/14	90/10	92/8
MASS MERCHANDISERS** (Department Stores)	99/1	99/1	99/1	99/1	99/1	99/1	97/3	99/1	98/2
MASS MERCHANDISERS** (Discount Stores)	99/1	99/1	99/1	98/2	99/1				
MASS MERCHANDISERS (Auto Chains)	96/4	98/2	94/6	96/4	95/5	89/11	83/17	78/22	79/21
MASS MERCHANDISERS (Other)	88/12	82/18	80/20	94/6	96/4	97/3	99/1	99/1	98/2
FLEET OPERATIONS	16/84	15/85	14/86	2/98	2/98	2/98	2/98	5/95	7/93
GOVERNMENT	2/98	0/100	0/100	5/95	19/81	24/76	32/68	45/55	71/29
VEHICLE/EQUIP. MFGS.	91/9	80/20	82/18	86/14	89/11	86/14	88/12	93/7	91/9
PARTS DISTRIBUTORS	39/61	42/58	40/60	43/57	43/57	43/57	39/61	42/58	40/60
BATTERY SPECIALISTS	67/33	68/32	68/32	72/28	76/24	75/25	75/25	79/21	75/25
OTHER	94/6	84/16	32/68	39/61	47/53	65/35	72/28	55/45	74/26

Source: BCI

*Percentages rounded.

**Beginning 1983, shipments for Mass Merchandisers Department and Discount Stores are combined into one figure.

r – 1983 figures revised.

U.S. AUTOMOTIVE REPLACEMENT BATTERY PRODUCTION

Millions of Units

	1982r	1983	1984	1985	1986
January	4.48	4.18	6.41	4.79	5.04
February	4.42	3.33	5.11	4.58	3.92
March	4.29	4.09	4.97	4.75	3.61
April	4.03	3.89	3.97	3.89	3.97
May	4.06	4.14	4.40	4.01	4.28
June	3.85	3.91	4.42	3.84	4.21
July	3.23	3.25	3.69	3.31	3.80
August	4.89	4.99	5.78	5.46	5.68
September	5.38	6.19	5.50	5.96	6.36
October	5.44	6.24	6.19	6.68	6.40
November	4.48	6.26	5.59	5.67	5.62
December	4.88	5.96	5.29	5.46	5.61

U.S. AUTOMOTIVE REPLACEMENT BATTERY INVENTORIES

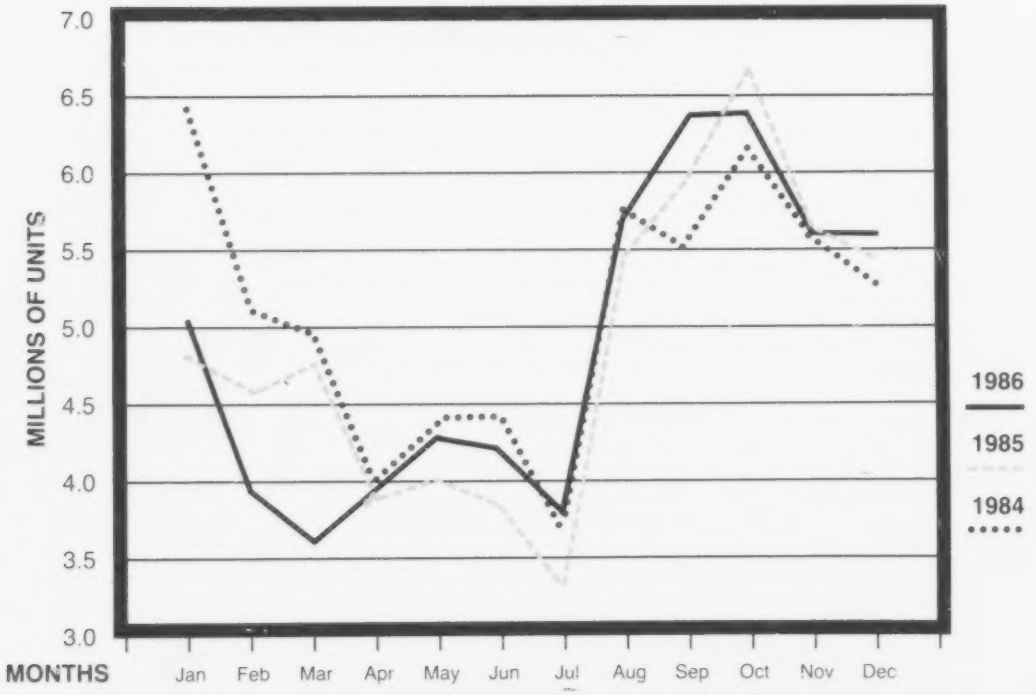
Millions of Units

	1982r	1983	1984	1985	1986
January	6.69	7.43	6.74	8.36	7.53
February	6.93	7.44	7.36	8.44	7.87
March	7.43	7.53	8.45	9.01	7.92
April	8.46	7.82	9.21	9.31	7.61
May	8.83	8.20	9.73	9.33	8.03
June	9.18	8.06	9.92	9.22	8.16
July	8.67	7.61	9.44	8.40	7.35
August	8.73	7.69	9.66	8.42	7.60
September	8.33	7.34	9.05	8.19	7.70
October	6.99	7.09	8.91	8.02	7.29
November	7.46	7.17	8.40	8.22	6.95
December	6.76	6.83	8.17	7.33	6.89

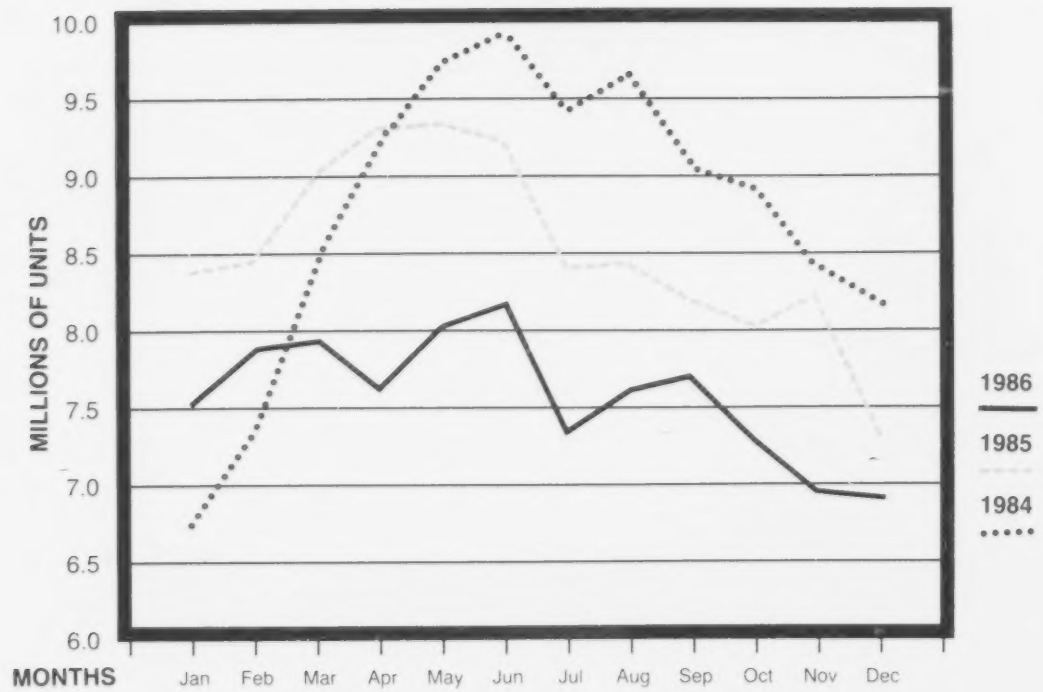
Source: BCI

r - 1982 figures have been revised

REPLACEMENT BATTERY PRODUCTION
1984-1986



REPLACEMENT BATTERY INVENTORIES
1984-1986



U.S. AUTOMOTIVE ORIGINAL EQUIPMENT BATTERY PRODUCTION

Millions of Units

	1982r	1983r	1984	1985	1986
January	.72	.86	1.34	1.47	1.64
February	.66	.67	.92	1.35	1.25
March	.90	1.10	1.51	1.38	1.48
April	.99	1.03	1.33	1.47	1.73
May	92	1.07	1.37	1.45	1.37
June	.91	1.10	1.18	1.20	1.45
July	.87	.86	1.04	1.10	1.03
August	.83	1.07	1.33	1.23	1.28
September	.76	1.26	1.09	1.30	1.49
October	.84	1.19	1.53	1.43	1.75
November	.66	1.14	1.16	1.23	1.29
December	.55	.94	.99	1.07	1.23

U.S. AUTOMOTIVE ORIGINAL EQUIPMENT BATTERY INVENTORIES

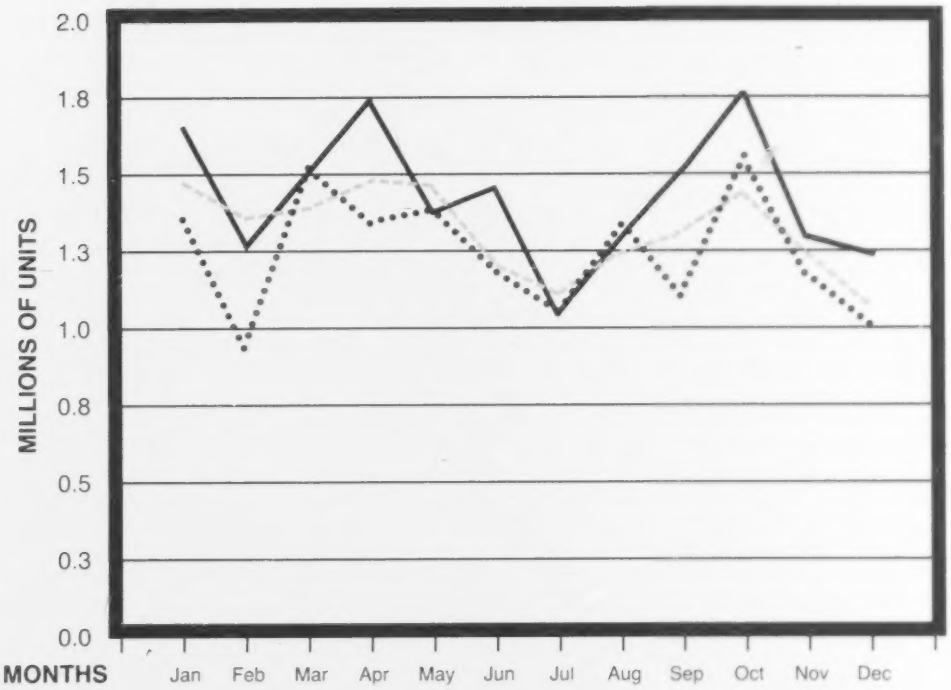
Millions of Units

	1982r	1983r	1984	1985	1986
January	.51	.41	.43	.69	.80
February	.47	.30	.35	.40	.76
March	.41	.35	.49	.71	.81
April	.44	.41	.48	.74	1.01
May	.46	.41	.59	.88	.88
June	.44	.50	.63	.88	.87
July	.61	.55	.59	.77	.76
August	.64	.56	.72	.73	.84
September	.60	.71	.66	.71	.87
October	.61	.58	.81	.73	.99
November	.49	.59	.68	.52	.95
December	.42	.40	.66	.55	.90

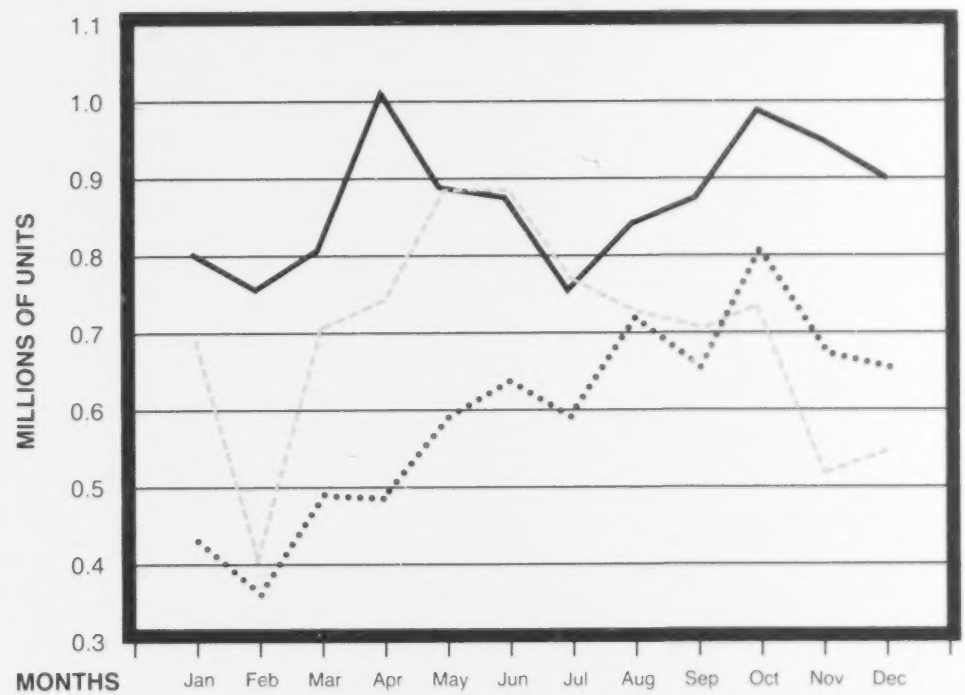
Source: BCI

r - 1982 and 1983 figures have been revised

ORIGINAL EQUIPMENT BATTERY PRODUCTION 1984-1986



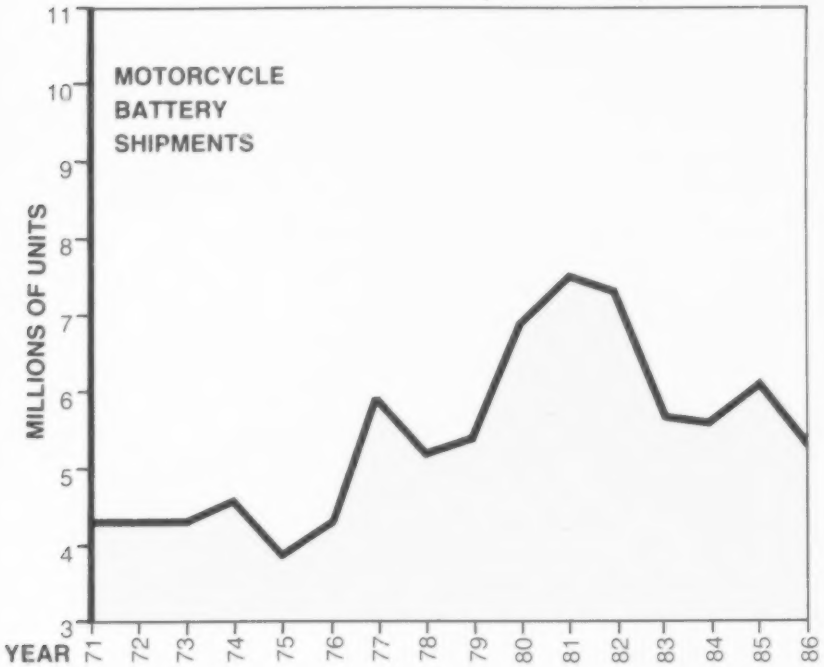
ORIGINAL EQUIPMENT BATTERY INVENTORIES 1984-1986



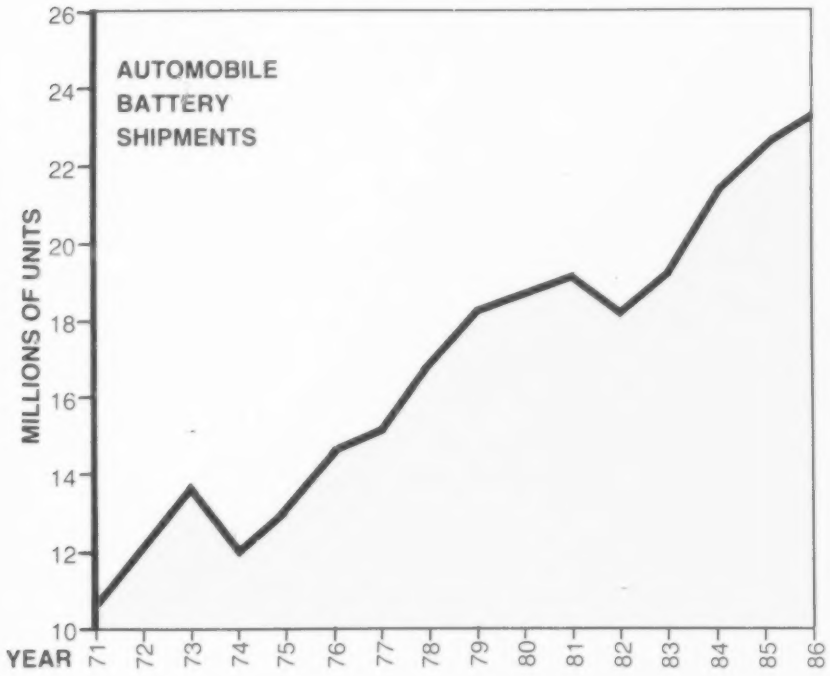
KEY: BOTH GRAPHS ••1984 ··1985 —1986

JAPANESE LEAD-ACID BATTERY SHIPMENTS

(1971-1986)



MOTORCYCLE BATTERY SHIPMENTS MILLIONS OF UNITS	
1971	4.3
1972	4.3
1973	4.3
1974	4.6
1975	3.9
1976	4.3
1977	5.9
1978	5.2
1979	5.4
1980	6.9
1981	7.5
1982	7.3
1983	5.7
1984	5.6
1985	6.1
1986	5.3



AUTOMOBILE BATTERY SHIPMENTS MILLIONS OF UNITS	
1971	10.6
1972	12.1
1973	13.6
1974	12.0
1975	13.1
1976	14.6
1977	15.2
1978	16.9
1979	18.2
1980	18.7
1981	19.1
1982	18.2
1983	19.2
1984	21.3
1985	22.5
1986	23.3

Source: Japan Storage Battery Association, Tokyo, Japan
Figures Rounded

AUTOMOBILE-MOTORCYCLE JAPANESE BATTERY SHIPMENTS ORIGINAL EQUIPMENT VS REPLACEMENT*

Millions of Units

AUTOMOBILE BATTERIES

Year	Replacement	Original Equipment	Total Number
1968	3.2	4.4	7.6
1969	4.0	5.1	9.1
1970	4.3	5.7	10.0
1971	4.7	5.9	10.6
1972	5.4	6.7	12.1
1973	6.3	7.3	13.6
1974	5.3	6.7	12.0
1975	5.7	7.4	13.1
1976	6.4	8.2	14.6
1977	6.4	8.8	15.2
1978	7.5	9.4	16.9
1979	7.6	10.6	18.2
1980	7.1	11.6	18.7
1981	7.5	11.6	19.1
1982	7.1	11.1	18.2
1983	7.6	11.6	19.2
1984	9.3	12.0	21.3
1985	9.6	12.9	22.5
1986	10.2	13.0	23.3

MOTORCYCLE BATTERIES

1968	1.3	2.4	3.7
1969	1.3	2.6	3.9
1970	1.0	3.1	4.1
1971	1.1	3.2	4.3
1972	1.1	3.2	4.3
1973	1.1	3.3	4.4
1974	.6	4.0	4.6
1975	.7	3.2	3.9
1976	.8	3.5	4.3
1977	.9	5.0	5.9
1978	1.0	4.2	5.2
1979	1.1	4.3	5.4
1980	1.3	5.6	6.9
1981	1.2	6.3	7.5
1982	1.4	5.9	7.3
1983	1.6	4.1	5.7
1984	1.6	3.9	5.6
1985	1.7	4.4	6.1
1986	1.8	3.5	5.3

Source: Japan Storage Battery Association
*Figures rounded.

QUARTERLY PRODUCTION OF AUSTRALIAN S.L.I. BATTERIES (000's)

	1976	1977	1978	1979	1980	1981	1982r	1983	1984	1985	1986
1ST QTR.	582.0	623.2	731.6	721.0	635.4	609.7	624.4	597.7	688.4	565.9	626.8
2ND QTR.	819.9	808.6	925.0	841.9	714.8	783.2	794.6	789.8	815.1	679.0	711.6
3RD QTR.	773.8	799.1	911.3	934.7	716.0	711.2	628.8	751.1	748.8	752.5	566.9
4TH QTR.	659.4	687.7	771.8	722.2	633.0	622.2	565.4	619.7	515.2	664.2	585.7
YEARLY TOTAL	2835.1	2918.6	3339.7	3219.8	2699.2	2726.3	2613.2	2758.3	2767.5	2661.6	2491.0

AUSTRALIAN S.L.I. BATTERY PRODUCTION (000's) 12 MONTH MOVING TOTALS

	1977	1978	1979	1980	1981	1982r	1983	1984	1985	1986
JAN	2847.6	2966.7	3326.6	3189.6	2688.6	2735.8	2618.0	2762.7	2750.1	2726.4
FEB	2847.7	3004.5	3323.7	3181.6	2642.1	2752.6	2593.0	2810.1	2699.2	2765.2
MAR	2876.2	3027.4	3329.5	3134.1	2673.6	2740.9	2586.6	2849.2	2644.9	2722.5
APR	2861.7	3059.3	3286.0	3116.1	2703.6	2769.2	2555.5	2851.0	2595.3	2749.5
MAY	2871.7	3082.5	3295.4	3068.0	2703.9	2778.3	2561.1	2852.1	2579.2	2750.2
JUN	2865.1	3143.8	3246.3	3007.0	2742.0	2752.4	2581.8	2874.4	2508.8	2755.2
JUL	2859.1	3188.5	3244.9	2985.4	2722.5	2717.2	2595.1	2914.6	2486.5	2570.5
AUG	2862.1	3233.8	3272.7	2867.3	2750.5	2673.7	2661.7	2911.8	2503.2	2560.3
SEP	2890.7	3256.0	3269.5	2788.4	2737.0	2670.1	2704.1	2872.1	2512.5	2569.6
OCT	2851.2	3350.5	3252.1	2773.9	2723.8	2638.4	2716.4	2858.2	2538.3	2607.4
NOV	2896.7	3356.5	3245.1	2707.1	2714.6	2637.5	2742.9	2819.6	2614.1	2528.1
DEC	2919.0	3340.1	3219.8	2699.2	2726.2	2613.3	2758.4	2767.5	2661.6	2491.0

Source: Australian Lead Development Association
r – 1982 figures revised by Australian Bureau of Metal Statistics
Figures rounded.

CANADIAN AUTOMOTIVE REPLACEMENT BATTERY SHIPMENTS (000's) TWELVE MONTH MOVING TOTALS

	YEAR							
MONTH	**1979**	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**
JAN	2435.8	2869.1	2653.5	2712.5	2930.4	2829.8	2855.5	3055.3
FEB	2460.7	2830.1	2712.3	2663.4	2895.8	2925.0	2831.4	3050.4
MAR	2488.8	2818.3	2724.6	2639.5	2876.5	2986.7	2829.1	3043.8
APR	2513.5	2786.2	2778.1	2621.7	2821.1	3049.3	2805.2	3069.9
MAY	2519.8	2742.9	2810.7	2672.2	2779.1	3059.6	2789.3	3081.7
JUN	2636.5	2655.5	2832.8	2697.7	2743.0	3137.6	2787.0	2988.2
JUL	2746.5	2564.0	2888.2	2652.1	2774.1	3112.1	2817.5	2923.9
AUG	2905.0	2374.4	2882.9	2646.6	2798.2	3171.4	2821.0	2800.4
SEP	2879.1	2390.8	2950.9	2918.0	2517.1	3179.9	2918.1	2653.2
OCT	2822.8	2545.1	2917.5	2872.6	2535.0	3157.4	2994.9	2648.9
NOV	2838.6	2626.3	2846.1	2875.8	2649.4	3034.9	3023.1	2633.7
DEC	2836.6	2710.1	2691.6	2994.4	2695.9	2941.9	3043.0	2562.6

Source: Statistics Canada

GLOBAL WESTERN EUROPEAN STARTER BATTERY MARKET 1980-1986

(Thousands of units)

	1980	1981	1982	1983	1984	1985	1986
Home market sales – OE – from home market producers	11,299	10,410	9,337	9,649	9,452	10,035	10,198
Home market sales – other clients from home market producers	20,406	19,650	20,434	21,035	19,922	21,731	20,955
Imports (after deduction of battery manufacturer imports)	6,335	6,820	9,502	9,993	10,707	11,256	11,495
TOTAL HOME MARKET SALES	38,040	36,880	39,273	40,677	40,081	43,022	42,648
Battery Production	40,706	39,269	41,539	42,154	43,260	46,968	46,004
Exports to Western Europe*	6,905	7,272	9,822	10,658	11,779	12,983	12,625
Other exports*	2,513	2,957	2,927	2,447	3,045	3,289	2,843
Production for Home Market	31,288	29,040	28,790	29,049	28,436	30,696	30,536
Imports from Western Europe**	5,714	6,145	9,164	9,681	10,398	11,990	12,053
Other Imports**	1,773	1,850	2,044	1,803	1,967	1,345	1,189
TOTAL OFFER FOR HOME MARKET	38,775	37,035	39,998	40,533	40,801	44,031	43,778

Source: EUROBAT-Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland

*includes exports to other battery manufacturers outside of the home market

**includes imports from other battery manufacturers outside of the home market

MEXICAN BATTERY MARKET

1980-1986
(Millions of Units)

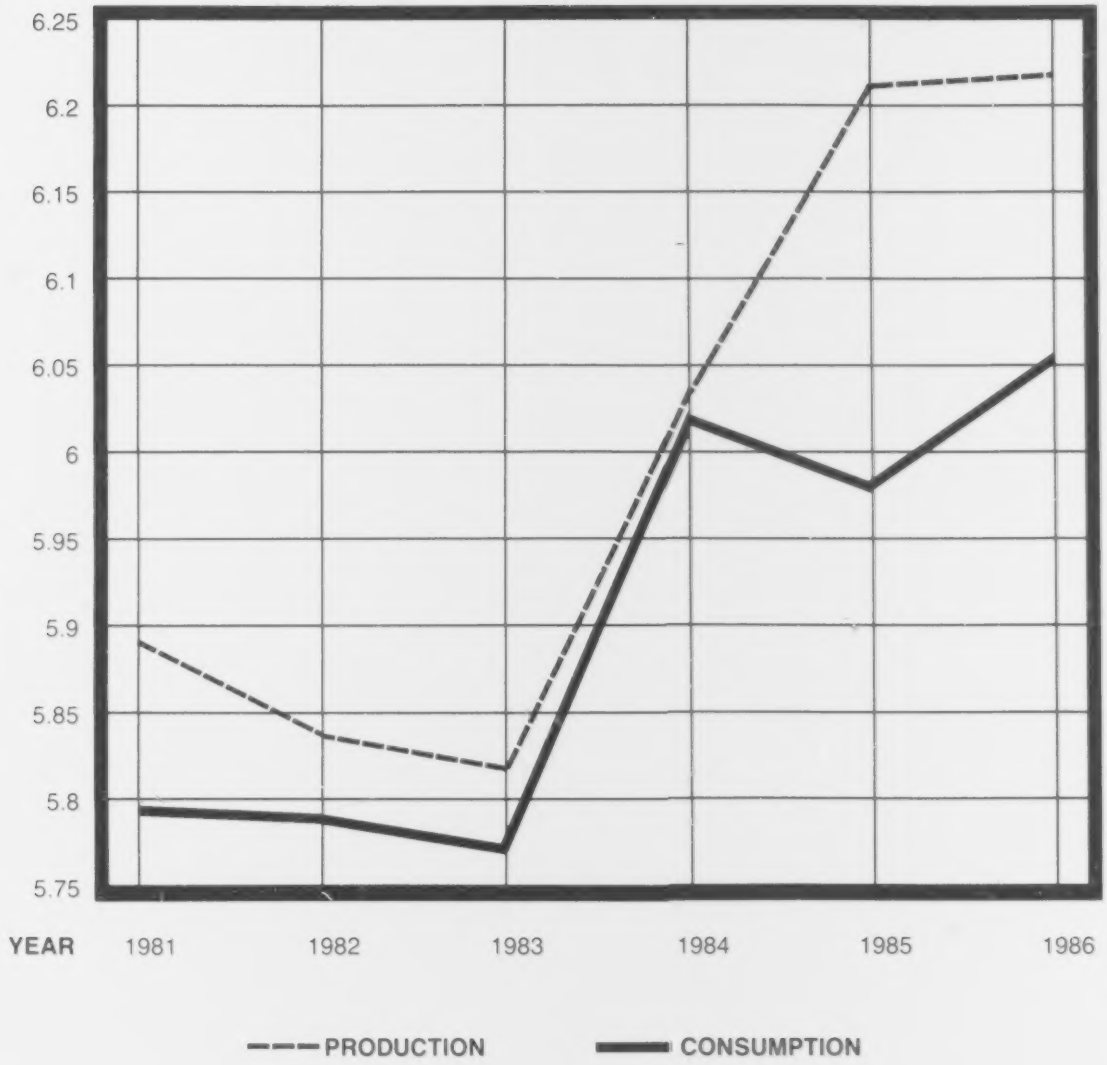
	1980	1981	1982	1983	1984	1985	1986
Global Battery Sales	3.0	3.5	3.7	3.0	3.6	3.6	3.6
Estimated Annual Consumption of Batteries	3.5	4.0	4.2	4.2	4.2	3.8	3.8
Automobile Production	.4	.6	.5	.3	.3	.4	.4
Vehicles in Circulation	5.8	6.5	6.8	6.8	6.8	6.7	6.6

Source: Asociacion Nacional de Fabricantes de Acumuladores, A.C.
Figures rounded.

WORLD REFINED PRODUCTION AND CONSUMPTION OF LEAD*

THOUSANDS OF SHORT TONS

	PRODUCTION	CONSUMPTION
1981	5898.7	5792.4
1982r	5836.0	5791.8
1983r	5830.7	5770.0
1984	6043.2	6037.5
1985	6213.8	5979.8
1986	6224.3	6055.3



Source: World Bureau of Metal Statistics.
*Figures Rounded.
r-1982 and 1983 figures have been revised.

CONSUMPTION OF LEAD IN UNITED STATES BY PRODUCT CATEGORY

Lead Content – Short Tons

	1982	1983*	1984	1985	1986
Metal Products Total	**965,436**	**1,068,093**	**1,131,327**	**1,104,437**	**1,102,160**
Ammunition – shot & bullets	48,763	48,168	52,721	55,372	48,923
Bearing metals total	6,761	6,442	5,155	5,943	6,089
Machinery except electrical	1,340	1,414	985	366	640
Electrical & electronic equipment	106	155	280	274	295
Motor vehicles & equipment	2,227	3,095	3,194	4,271	4,174
Other transportation equip.	3,088	1,778	696	1,032	980
Brass & bronze – billets & ingots	12,513	12,103	7,665	8,623	9,241
Cable covering – power & communication	16,734	11,580	13,525	17,087	18,807
Calking lead – building construction	4,471	3,937	4,372	2,522	2,021
Casting metals total	27,626	17,907	17,422	21,399	11,319
Electrical machinery & equipment	884	1,408	1,818	2,030	1,321
Motor vehicles & equipment	724	761	840	1,124	1,496
Other transportation and equipment	26,018	6,214	8,723	12,285	7,485
Nuclear radiation shielding	(c)	9,524	6,041	5,960	1,017
Pipes, traps & other extruded products total	9,567	14,348	15,055	13,068	13,825
Building construction	9,100	14,078	12,534	12,629	13,117
Storage tanks, process vessels, etc.	467	270	2,521	439	708
Sheet lead total	16,710	15,702	16,165	16,349	19,043
Building construction	11,011	12,058	14,746	12,562	13,858
Storage tanks, process vessels, etc.	138	143	176	1,766	2,247
Medical radiation shielding	5,561	3,501	1,243	2,021	2,938
Solder total	31,416	31,405	26,941	23,560	23,482
Building construction	7,430	8,327	7,212	4,926	4,975
Metal cans & shipping containers	8,223	5,667	3,610	3,190	2,258
Electronic components & accessories	6,577	6,255	5,909	4,615	4,776
Other electrical machinery & equipment	2,978	2,681	2,454	2,863	2,421
Motor vehicles & equipment	6,208	8,475	7,756	7,966	9,052
Storage battery grids, posts, etc. total	344,562	421,453	469,915	516,703	538,955
Storage batteries – SLI automotive	313,891	(b)	(b)	(b)	(b)
Storage batteries – industrial & traction	30,671	(b)	(b)	(b)	(b)
Storage battery oxides total	431,820	468,000	484,181	410,273	402,209
Storage batteries – SLI automotive	410,150	(b)	(b)	(b)	(b)
Storage batteries – industrial & traction	21,670	(b)	(b)	(b)	(b)
Terne metal – motor vehicles & equipment	3,624	5,574	6,695	5,609	3,855
Type metal – printing & allied industries	3,049	2,800	2,383	1,789	337
Other metal products (a)	7,820	8,674	9,132	6,140	4,054
Other Oxides Total	**67,093**	**75,722**	**84,666**	**80,208**	**76,640**
Paints	14,743	17,022	19,136	15,494	15,873
Glass & ceramic products	38,059	43,729	50,819	48,663	44,953
Other pigments	14,291	14,971	14,711	16,051	15,814
Gasoline Additives	**131,433**	**98,236**	**87,009**	**50,369**	**31,461**
Miscellaneous Uses	**21,471**	**23,938**	**27,521**	**30,764**	**29,671**
Total	**1,185,433**	**1,265,989**	**1,330,523**	**1,265,778**	**1,239,932**

Source: U.S. Bureau of Mines.

Current monthly data available, report 114, for the above table on an annual subscription basis.

(a) Includes lead consumed in foil, collapsible tubes, annealing, galvanizing, plating and fishing weights.

(b) Breakdown for this category no longer reported.

(c) Included in 'Other transportation and equipment'.

*NOTE: 1983 figures have been revised. Revision supplied by American Bureau of Metal Statistics.

Figures Rounded.

PRIMARY LEAD SMELTED AND REFINED IN THE UNITED STATES

Short Tons

	1982	1983*	1984	1985	1986
Domestic					
Ore (a)	506,914	506,322	363,947	458,661	379,389
Foreign					
Ore and Base Bullion	57,645	60,877	72,101	78,653	24,329
Total (b)	564,559	567,199	436,048	537,314	403,718
Antimonial					
Lead	na	na	na	na	na
Antimony					
Content	na	na	na	na	na

Source: U.S. Bureau of Mines
(a) Includes production resulting from zinc plant residues.
(b) USBM considers refined lead to be only soft lead and accounts for antimonial or hard lead separately.
*NOTE: 1983 figures have been revised.
na - not available.

SECONDARY LEAD RECOVERED IN THE UNITED STATES

Short Tons

	1982	1983**	1984	1985	1986
As Refined Metal					
At Primary Plants	724	*	*	*	*
At Other Plants	264,355	*	*	*	*
Sub Total	265,079	209,000	290,383	301,700	309,169
In Antimonial Lead					
At Primary Plants	37	*	*	*	*
At Other Plants	313,424	*	*	*	*
Sub Total	313,461	299,429	361,341	329,929	319,812
In Other Alloys	51,183	46,585	46,451	47,058	48,814
TOTAL	629,723	555,014	698,175	678,687	677,795
From New Scrap	55,120	50,200	52,498	50,665	53,858
From Old Scrap	574,603	501,500	645,677	628,021	623,937

Source: U.S. Bureau of Mines
*As of 1983, the subtotals will account for secondary lead recovered from both primary plants and other plants.
**NOTE: 1983 figures have been revised.

STOCKS OF LEAD AT UNITED STATES SMELTERS

Short Tons

	1982	1983	1984	1985	1986
Stocks At End Of Period					
Ore, Matte, Scrap & In Process	82,246	81,700	118,688	66,887	78,855
Base Bullion	404	392	202	634	2,755
TOTAL	82,650	82,092	118,890	67,521	81,610

Source: American Bureau of Metal Statistics. Compiled from reports received from two lead smelting companies.
Current monthly data available, report 113, for the above table on an annual subscription basis.

STOCKS OF LEAD AT CONSUMERS AND SECONDARY SMELTERS IN THE UNITED STATES

Short Tons, Lead Content

	1982	1983	1984	1985	1986
Refined Soft Lead	56,257	63,803	59,306	55,639	52,458
Antimonial Lead	44,222	40,961	40,802	40,095	33,557
Lead Alloys	5,893	5,605	5,871	6,360	6,089
Copper Base Scrap	782	712	1,030	563	297
TOTAL	107,154	111,081	107,009	102,657	92,401

Source: U.S. Bureau of Mines

UNITED STATES SHIPMENTS OF STORAGE BATTERY OXIDES

Total Weight Shipped, Short Tons

	1982	1983	1984	1985	1986
Storage Battery Oxides Shipped					
JAN	10,461	8,188	14,180	11,706	13,269
FEB	8,647	7,817	11,067	10,608	10,249
MAR	10,253	9,085	12,190	10,651	10,448
APR	8,186	8,862	10,497	10,930	10,684
MAY	7,976	9,289	11,253	10,658	10,275
JUN	8,683	10,237	11,424	9,608	9,887
JUL	7,289	8,861	11,199	10,433	8,651
AUG	11,053	12,970	13,857	12,249	13,399
SEP	9,080	14,499	10,868	15,160	13,786
OCT	9,320	14,105	13,868	12,237	15,699
NOV	7,979	13,062	11,468	12,538	12,343
DEC	7,856	12,318	9,974	11,600	13,503
TOTAL	106,783	129,293	141,845	138,378	142,193

Source: American Bureau of Metal Statistics, Inc.

UNITED STATES IMPORTS AND EXPORTS OF LEAD

Short Tons

	1982	1983	1984	1985	1986
Imports					
Ores And Matte	39,471	52,375	75,839	47,029	95,617
Bullion Or Base Bullion	21	58	47	838	157
Pigs And Bars	100,519	144,106	178,093	147,191	154,566
Total	140,011	196,539	253,979	195,058	250,340
Reclaimed, Scrap, Dross, Etc.	9,257	7,442	3,167	2,039	2,501
Exports (includes re-exports)					
Lead Material (excluding scrap) (a)	53,790	22,385	7,590	29,623	12,421
Scrap (b)	57,047	56,127	49,710	66,082	70,067

Source: U.S. Dept. of Commerce - Bureau of the Census
American Bureau of Metal Statistics
U.S. Bureau of Mines

(a) Includes antimonial lead

(b) Gross weight

Current monthly data available for the above table on an annual subscription basis.

AUSTRALIAN LEAD PRICES

F.O.B. Port Pirie Per Metric Tons – Prices Are Expressed In Australian Dollars

	1981	1982	1983	1984	1985	1986
January	650.00	650.00	600.00	527.50	500.00	580.00
February	650.00	650.00	600.00	500.00	500.00	550.00
March	650.00	650.00	600.00	500.00	500.00	550.00
April	650.00	650.00	600.00	500.00	521.05	550.00
May	650.00	619.05	600.00	500.00	595.65	550.00
June	600.00	600.00	600.00	516.25	600.00	557.50
July	650.00	600.00	600.00	529.55	600.00	600.00
August	707.14	600.00	600.00	575.00	600.00	600.00
September	720.45	600.00	600.00	535.00	600.00	638.09
October	672.73	600.00	552.27	500.00	600.00	650.00
November	650.00	600.00	550.00	500.00	600.00	690.00
December	650.00	600.00	591.86	500.00	600.00	735.71

Source: The Broken Hill Associated Smelters Proprietary Limited.
Prices apply to both 99.99% and 99.97% purity lead.
Supplied by American Bureau of Metal Statistics.

COMINCO PIG LEAD PRICES

U.S. Cents Per Pound

	1981	1982	1983	1984	1985	1986
January	35.529	30.678	22.422	25.099	20.015	18.414
February	30.832	29.057	21.402	24.038	18.897	18.159
March	35.711	28.392	20.998	24.648	17.522	18.238
April	37.465	26.122	20.893	25.789	20.291	18.864
May	37.469	26.751	20.125	25.494	19.991	19.412
June	37.976	24.837	19.476	27.498	19.231	22.389
July	41.150	28.555	19.516	31.098	19.222	23.175
August	43.998	26.246	19.364	28.420	19.293	22.395
September	41.955	26.320	21.635	24.864	19.448	23.360
October	37.431	24.551	25.974	23.884	19.024	25.567
November	35.017	22.576	26.886	25.320	18.888	27.997
December	31.664	21.262	24.461	23.504	18.633	28.983

Source: Cominco Ltd., Producers' prices for carload quantities.
Supplied by American Bureau of Metal Statistics.

LONDON METAL EXCHANGE LEAD PRICES

U.S. Cents Per Pound

	1981	1982	1983	1984	1985	1986
January	31.948	29.374	21.544	18.013	19.029	16.694
February	31.236	28.010	20.608	18.331	16.689	16.637
March	33.063	27.752	20.088	20.823	15.951	16.636
April	34.382	26.047	20.737	21.831	17.650	16.739
May	31.584	26.049	19.630	20.535	17.037	17.056
June	32.302	23.585	18.493	21.947	17.638	18.956
July	35.548	25.032	18.274	22.368	18.267	17.211
August	37.343	23.695	18.038	21.182	18.743	17.771
September	34.609	23.350	18.344	18.199	18.147	18.451
October	32.467	22.542	19.001	18.673	17.828	19.692
November	30.183	20.960	18.344	19.964	17.856	21.451
December	30.555	20.299	18.225	18.828	17.669	23.483

Source: Metal Bulletin.
Supplied by American Bureau of Metal Statistics.

UNITED STATES PRODUCER LEAD PRICES

U.S. Cents Per Pound

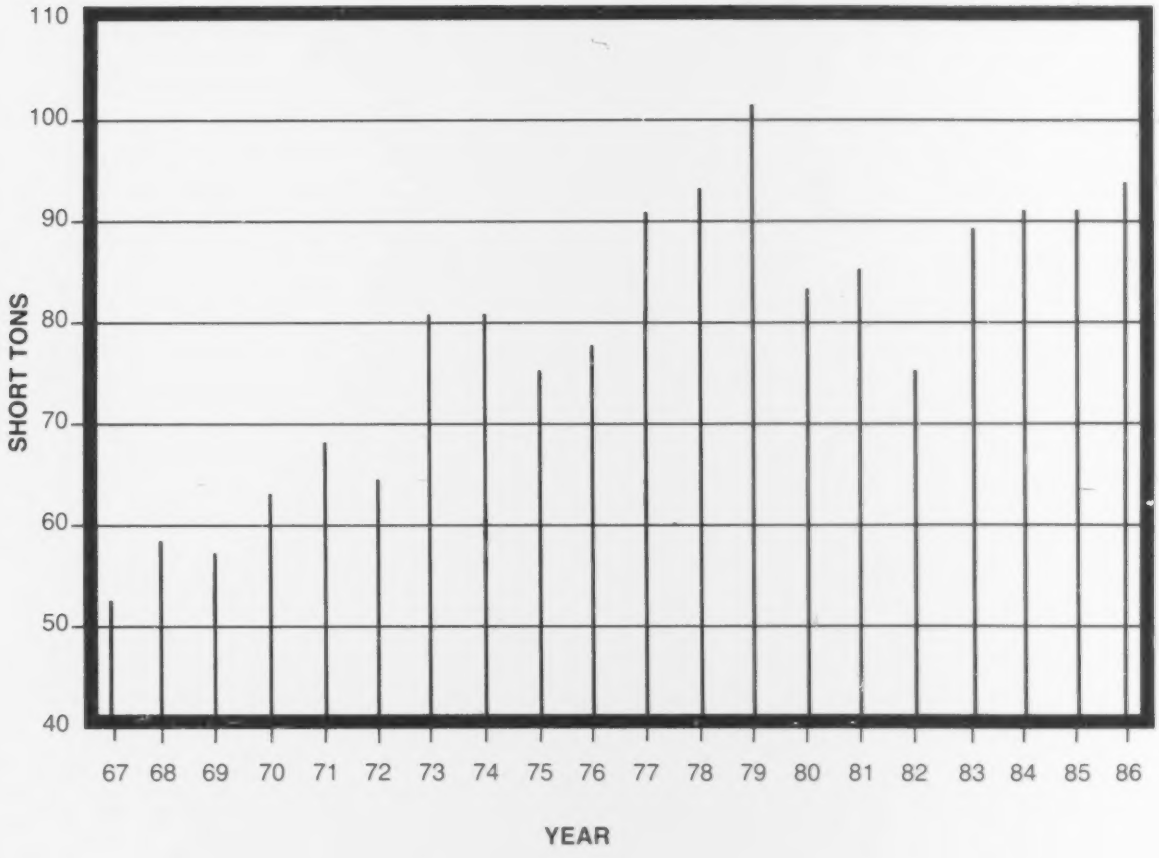
	1981	1982	1983	1984	1985	1986(a)
January	33.793	29.674	22.028	25.124	19.089	18.354
February	30.422	28.703	21.124	24.073	18.820	17.790
March	35.056	27.635	20.713	25.030	17.676	18.202
April	37.519	26.059	21.171	26.431	19.915	18.731
May	36.413	26.091	20.224	25.372	20.108	19.384
June	37.973	24.763	19.414	28.161	19.053	22.069
July	40.985	27.175	19.324	30.509	18.884	21.940
August	43.890	25.818	19.458	28.238	19.099	22.422
September	40.323	25.318	21.686	24.175	19.199	23.429
October	37.049	26.191	25.377	22.328	18.928	25.550
November	33.875	21.608	25.151	25.251	19.053	28.006
December	31.071	20.469	24.459	21.888	18.974	28.685

Source: Metals Week.
(a) Beginning October 1986, North American producer price; prior U.S. producer price.
Supplied by American Bureau of Metal Statistics.

LEAD USED IN PRODUCTION OF INDUSTRIAL TYPE BATTERIES*

SHORT TONS

1967	52,130	**1972**	64,415	**1977**	90,853	**1982**	75,082
1968	58,447	**1973**	80,834	**1978**	93,385	**1983**	89,077
1969	57,381	**1974**	80,856	**1979**	101,918	**1984**	91,011
1970	63,552	**1975**	75,395	**1980**	83,635	**1985**	91,000
1971	68,060	**1976**	77,847	**1981**	85,145	**1986**	94,000

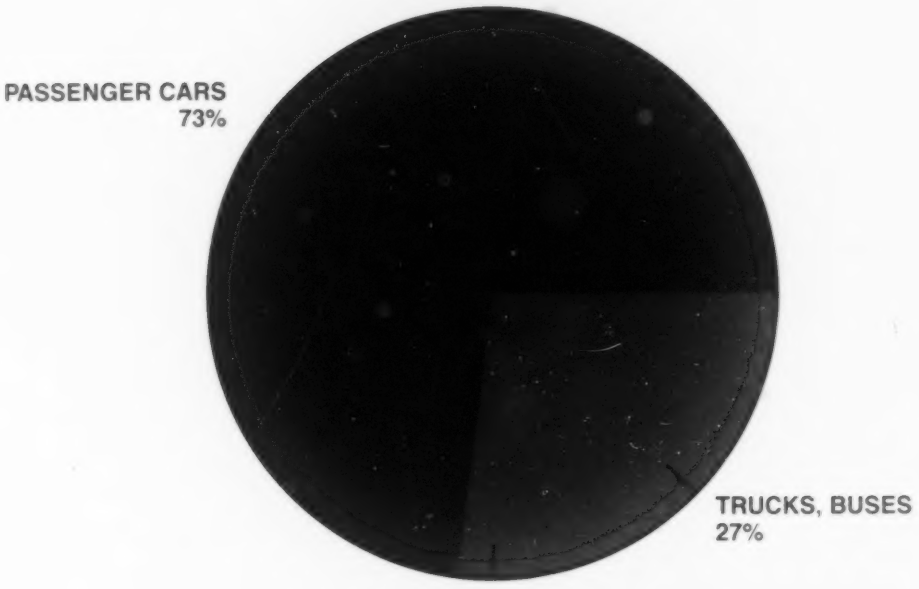


Source: LEAD INDUSTRIES ASSOCIATION, INC.

*Covers all lead used in the manufacture of industrial type batteries, including the lead content of lead alloys and lead oxides, whether purchased or produced in own plant.

PASSENGER CAR AND TRUCK SHARES OF TOTAL VEHICLE PRODUCTION

Average for 1983-1986



WORLD MOTOR VEHICLE PRODUCTION 1983-1986 (Millions of Units)

1983

Passenger Cars Produced:	29.7 M	75%
Trucks, Buses Produced:	10.0 M	25%
TOTAL:	39.7 M	100%

1984

Passenger Cars Produced:	30.5 M	72%
Trucks, Buses Produced:	11.6 M	28%
TOTAL:	42.1 M	100%

1985

Passenger Cars Produced:	32.3 M	72%
Trucks, Buses Produced:	12.5 M	28%
TOTAL:	44.8 M	100%

1986

Passenger Cars Produced:	32.7 M	73%
Trucks, Buses Produced:	12.4 M	27%
TOTAL:	45.1 M	100%

Source: Motor Vehicle Manufacturers Association of the United States, compiled from various sources.
Figures rounded.

WORLD MOTOR VEHICLE PRODUCTION

Millions of Units

COUNTRY		1982	1983	1984	1985	1986
Argentina	TOTAL (M)	.20	.16	.17	.14	.17
	%Cars	87%	81%	82%	85%	81%
	%Trucks, Buses	13%	19%	18%	15%	19%
Australia	TOTAL (M)	.41	.34	.40	.41	.36
	%Cars	91%	92%	93%	93%	93%
	%Trucks, Buses	9%	8%	7%	7%	7%
Austria	TOTAL (M)	.02	.01	.01	.01	.01
	%Cars	47%	50%	51%	52%	58%
	%Trucks, Buses	53%	50%	49%	48%	42%
Belgium	TOTAL (M)	.28	.29	.25	.27	.28
	%Cars	87%	91%	85%	86%	80%
	%Trucks, Buses	13%	9%	15%	14%	20%
Brazil	TOTAL (M)	.81	.90	.86	.97	1.06
	%Cars	87%	64%	79%	84%	72%
	%Trucks, Buses	13%	36%	21%	16%	28%
Canada	TOTAL (M)	1.21	1.52	1.83	1.93	1.85
	%Cars	66%	64%	56%	56%	57%
	%Trucks, Buses	34%	36%	44%	44%	43%
China	TOTAL (M)	NA	NA	.31	.44	.37
	%Cars			1%	1%	3%
	%Trucks, Buses			99%	99%	97%
Czechoslovakia	TOTAL (M)	.16	.23	.23	.24	.24
	%Cars	66%	75%	78%	78%	78%
	%Trucks, Buses	34%	25%	22%	22%	22%
France	TOTAL (M)	3.20	3.34	3.06	3.02	3.19
	%Cars	88%	89%	89%	87%	87%
	%Trucks, Buses	12%	11%	11%	13%	13%
East Germany	TOTAL (M)	.15	.22	.25	.26	.26
	%Cars	74%	82%	82%	82%	83%
	Trucks, Buses	26%	18%	18%	18%	17%
West Germany	TOTAL (M)	4.06	4.17	4.05	4.45	4.60
	%Cars*	93%	93%	94%	94%	94%
	%Trucks, Buses	7%	7%	6%	6%	6%
Hungary	TOTAL (M)	.01	.01	.01	.01	.02
	%Cars					
	%Trucks, Buses	100%	100%	100%	100%	100%
India	TOTAL (M)	.15	.15	.18	.23	.24
	%Cars	28%	29%	55%	44%	49%
	%Trucks, Buses	72%	71%	45%	56%	51%

*Includes Micro Buses.

WORLD MOTOR VEHICLE PRODUCTION Cont.

COUNTRY		1982	1983	1984	1985	1986
Italy	TOTAL (M)	1.45	1.58	1.60	1.57	1.83
	%Cars	89%	89%	90%	88%	90%
	%Trucks, Buses	11%	11%	10%	12%	10%
Japan	TOTAL (M)	10.73	11.11	11.46	12.27	12.26
	%Cars	64%	64%	62%	62%	64%
	%Trucks, Buses	36%	36%	38%	38%	36%
Korea, South	TOTAL (M)	.16	.22	.27	.38	.60
	%Cars	59%	55%	60%	70%	76%
	%Trucks, Buses	41%	45%	40%	30%	24%
Mexico	TOTAL (M)	.47	.29	.34	.40	.27
	%Cars	64%	73%	67%	62%	62%
	%Trucks, Buses	36%	27%	33%	38%	38%
Netherlands	TOTAL (M)	.10	.12	.13	.13	.14
	%Cars	90%	90%	84%	84%	84%
	%Trucks, Buses	10%	10%	16%	16%	16%
Poland	TOTAL (M)	.28	.31	.35	.35	.34
	%Cars	83%	83%	83%	83%	84%
	%Trucks, Buses	17%	17%	17%	17%	16%
Romania	TOTAL (M)	.13	.15	NA	NA	NA
	%Cars	60%	64%			
	%Trucks, Buses	40%	36%			
Spain	TOTAL (M)	1.07	1.29	1.31	1.42	1.53
	%Cars	87%	89%	90%	87%	84%
	%Trucks, Buses	13%	11%	10%	13%	16%
Sweden	TOTAL (M)	.35	.40	.43	.46	.49
	%Cars	84%	87%	86%	87%	86%
	%Trucks, Buses	16%	13%	14%	13%	14%
United Kingdom	TOTAL (M)	1.16	1.29	1.13	1.31	1.25
	%Cars	77%	81%	80%	80%	82%
	%Trucks, Buses	23%	19%	20%	20%	18%
United States	TOTAL (M)	6.99	9.21	10.94	11.65	11.33
	%Cars	73%	74%	71%	70%	69%
	%Trucks, Buses	27%	26%	29%	30%	31%
USSR	TOTAL (M)	2.21	2.18	2.21	2.23	2.17
	%Cars	60%	61%	60%	60%	60%
	%Trucks, Buses	40%	39%	40%	40%	40%
Yugoslavia	TOTAL (M)	.24	.25	.27	.26	.28
	%Cars	88%	85%	87%	84%	85%
	%Trucks, Buses	12%	15%	13%	16%	15%
TOTAL WORLD		36.00M	39.74M	42.1M	44.8M	45.1M

Source: Compiled by Motor Vehicle Mfgers. Assoc. of U.S. Inc. from various sources. Figures rounded. NA: Not Available
Note: As far as can be determined, this table refers to vehicles locally manufactured.

VEHICLES IN USE IN THE U.S.

Millions of Units*

1947	33.5
1948	36.6
1949	39.8
1950	43.5
1951	46.6
1952	48.2
1953	50.9
1954	53.2
1955	56.5
1956	59.3
1957	61.2
1958	62.5
1959	65.6
1960	67.9
1961	69.9
1962	72.4
1963	75.4
1964	78.5
1965	82.1
1966	85.6
1967	88.0
1968	91.0
1969	95.1
1970	98.1
1971	101.6
1972	106.2
1973	111.2
1974	115.9
1975	120.1
1976	124.4
1977	128.1
1978	133.5
1979	137.3
1980	139.8
1981	141.9
1982	143.9
1983	147.1
1984	152.1
1985	157.1
1986	162.1

Source: R.L. Polk & Company. Further reproduction prohibited.
*As of July 1 each year.
Figures rounded.

UNITED STATES
MOTOR VEHICLE REGISTRATIONS (In Millions)

	1981	1982	1983	1984	1985	1986[3]
ALABAMA	3.08	3.11	3.14	3.20	3.34	3.46
ALASKA	.30	.33	.35	.37	.35	.35
ARIZONA	2.20	2.32	2.29	2.11	2.24	2.35
ARKANSAS[1]	1.59	1.51	1.44	1.32	1.38	1.44
CALIFORNIA	17.53	17.82	17.77	17.97	18.90	19.70
COLORADO	2.60	2.62	2.65	2.75	2.76	2.77
CONNECTICUT	2.18	2.33	2.31	2.37	2.46	2.54
DELAWARE	.42	.43	.43	.46	.47	.49
DISTRICT OF COLUMBIA[1]	.28	.24	.30	.31	.33	.35
FLORIDA	8.19	8.56	8.81	9.39	9.86	10.35
GEORGIA[1]	3.97	4.03	4.21	4.46	4.58	4.69
HAWAII	.59	.59	.61	.64	.65	.67
IDAHO[1]	.91	.93	.88	.85	.85	.86
ILLINOIS	7.90	7.54	7.51	7.60	7.73	7.79
INDIANA	4.06	4.05	3.85	3.95	4.02	4.09
IOWA	2.59	2.58	2.48	2.44	2.70	2.76
KANSAS	2.14	2.19	2.05	2.12	2.15	2.17
KENTUCKY	2.66	2.68	2.62	2.59	2.61	2.64
LOUISIANA	2.90	2.87	2.88	2.96	3.01	3.05
MAINE[1]	.78	.79	.77	.80	.84	.86
MARYLAND	2.93	2.97	3.01	3.19	3.28	3.36
MASSACHUSETTS	3.88	3.85	3.84	3.79	3.74	3.74
MICHIGAN	6.41	6.49	6.29	6.37	6.73	7.19
MINNESOTA	3.34	3.45	3.24	2.97	3.39	3.55
MISSISSIPPI[1]	1.61	1.62	1.56	1.67	1.75	1.81
MISSOURI	3.44	3.51	3.43	3.52	3.56	3.59
MONTANA	.77	.76	.83	.68	.65	.63
NEBRASKA	1.26	1.26	1.23	1.26	1.26	1.26
NEVADA	.72	.73	.73	.74	.71	.70
NEW HAMPSHIRE	.82	.83	.80	.87	.97	1.02
NEW JERSEY[2]	4.80	5.02	4.94	4.90	4.91	4.93
NEW MEXICO	1.10	1.25	1.24	1.22	1.18	1.16
NEW YORK	8.31	8.43	8.42	8.64	9.04	9.37
NORTH CAROLINA	4.66	4.70	4.60	4.37	4.45	4.54
NORTH DAKOTA	.67	.68	.67	.69	.66	.65
OHIO	8.01	7.92	7.77	7.89	8.10	8.33
OKLAHOMA	2.75	2.92	2.77	2.78	2.86	2.92
OREGON[1]	2.17	2.16	2.12	2.18	2.20	2.22
PENNSYLVANIA	7.24	6.95	6.84	7.08	7.21	7.34
RHODE ISLAND	.62	.61	.60	.62	.61	.62
SOUTH CAROLINA	2.01	2.01	2.06	2.13	2.22	2.28
SOUTH DAKOTA	.65	.65	.63	.64	.65	.68
TENNESSEE	3.62	3.46	3.54	3.57	3.75	3.91
TEXAS	11.46	11.73	11.69	12.17	12.44	12.61
UTAH	1.10	1.10	1.07	1.09	1.10	1.11
VERMONT	.37	.37	.37	.38	.40	.42
VIRGINIA	3.93	3.79	3.89	4.05	4.25	4.46
WASHINGTON	3.48	3.47	3.34	3.43	3.53	3.77
WEST VIRGINIA[1]	1.39	1.20	1.18	1.11	1.18	1.24
WISCONSIN	3.30	3.37	3.21	3.09	3.19	3.28
WYOMING	.51	.53	.50	.49	.50	.51

Source: U.S. Federal Highway Administration

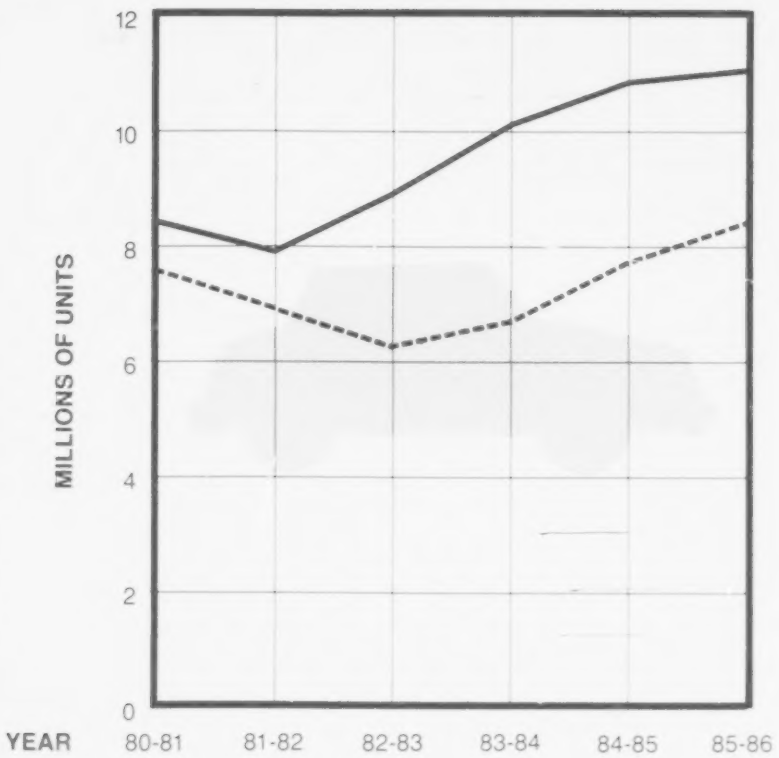
Note: 1981, 1982 – Autos, Trucks, Buses, and Motorcycles / 1983, 1984, 1985, 1986 – Autos, Trucks, Buses. Registrations include both privately and publicly-owned vehicles.

[1]The 1984 data were revised due to additional information.

[2]The state was unable to provide motor-vehicle registration data for 1985. The figure shown here is an estimate by the Federal Highway Administration

[3]These estimates were made by the Federal Highway Administration on the basis of state reports of vehicle registrations in the early months of 1985 and information available on current trends, vehicle production and other factors. They include both privately owned and publicly owned vehicles except those owned by the military services.

NEW CARS REGISTERED VS CARS SCRAPPED IN U.S.



Growth of Cars In Use	
1980	1.2%
1981	1.2%
1982	1.0%
1983	2.0%
1984	2.8%
1985	2.4%
1986	2.3%

U.S. CAR DATA:

MILLIONS

New Cars Registered	Cars Scrapped
'80-'81 – 8.4	'80-'81 – 7.54
'81-'82 – 7.9	'81-'82 – 6.92
'82-'83 – 8.9	'82-'83 – 6.24
'83-'84 – 10.1	'83-'84 – 6.68
'84-'85 – 10.9	'84-'85 – 7.73
'85-'86 – 11.1	'85-'86 – 8.44

Source: R.L. Polk & Co. Further reproduction prohibited.
*As of July 1 each year.

UNITED STATES – NEW CAR REGISTRATIONS

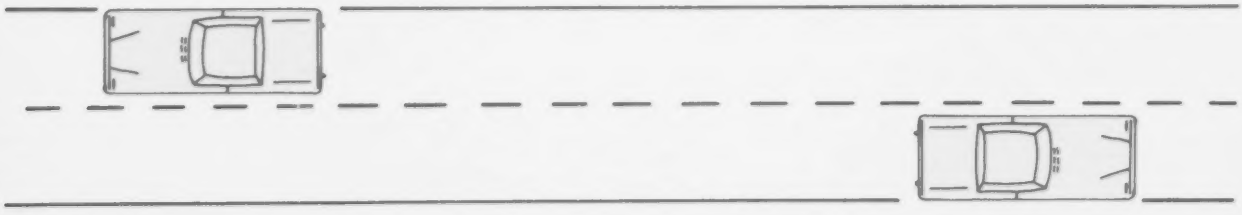
Millions of Units

1949	5.5	1968	9.5
1950	6.3	1969	9.4
1951	4.4	1970	8.7
1952	4.9	1971	10.2
1953	5.7	1972	11.4
1954	6.2	1973	10.0
1955	6.7	1974	8.3
1956	5.9	1975	9.4
1957	5.3	1976	10.3
1958	5.6	1977	11.0
1959	6.4	1978	11.0
1960	6.0	1979	9.6
1961	6.4	1980	8.8
1962	7.3	1981	8.4
1963	7.9	1982	7.9
1964	8.6	1983	8.9
1965	9.2	1984	10.1
1966	8.7	1985	10.9
1967	8.6	1986	11.1

Source: R.L. Polk & Co. Further reproduction prohibited.
Note: Adjustments for absence of Oklahoma and other states have been made where applicable.
As of July 1 each year.

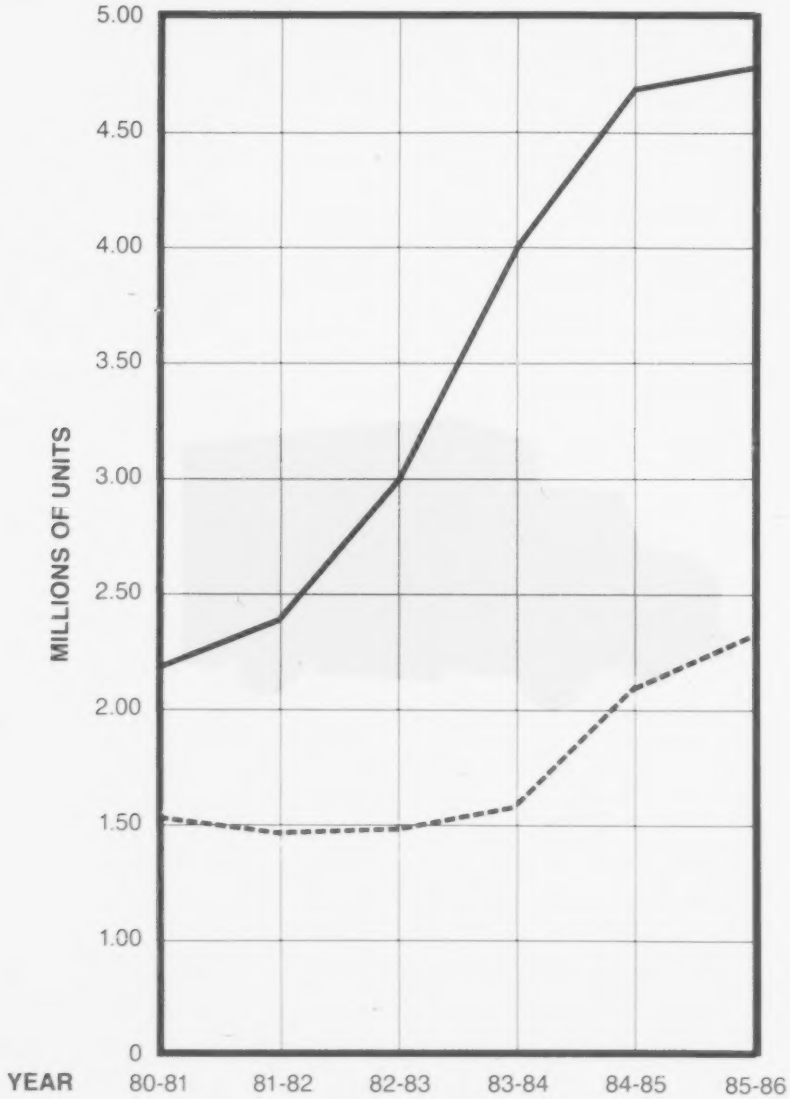
UNITED STATES
NEW CAR REGISTRATIONS (000's)

	1980	1981	1982	1983	1984	1985	1986
Alabama	124.1	112.1	100.7	123.4	141.9	153.5	159.5
Alaska	12.6	16.7	16.3	18.0	16.9	14.8	12.8
Arizona	98.9	89.4	75.0	83.8	102.3	122.1	121.5
Arkansas	72.1	73.5	66.0	64.8	69.9	71.4	71.0
California	902.5	846.2	806.8	922.3	1,006.4	1,135.5	1,147.4
Colorado	117.8	116.0	103.7	111.2	122.1	126.4	121.8
Connecticut	133.6	127.0	121.2	143.5	161.0	197.2	214.1
Delaware	31.8	30.9	30.1	36.0	41.6	46.4	47.8
District of Columbia	16.8	18.0	15.8	18.5	21.5	21.1	22.8
Florida	477.8	505.8	466.0	589.9	663.0	710.2	700.8
Georgia	210.2	193.3	163.0	226.2	252.5	282.5	283.4
Hawaii	37.1	39.2	37.1	42.8	48.8	51.3	49.7
Idaho	27.0	29.8	21.7	22.3	24.0	23.7	23.7
Illinois	494.1	454.0	450.4	510.8	573.6	630.8	633.8
Indiana	193.8	180.6	158.9	172.3	208.9	222.8	227.2
Iowa	97.1	94.4	80.7	90.8	88.1	91.9	91.7
Kansas	90.7	81.0	75.2	80.3	85.9	89.5	86.8
Kentucky	85.6	105.5	88.0	99.7	112.1	118.0	121.5
Louisiana	164.4	162.6	141.7	147.9	155.0	153.0	133.4
Maine	34.1	43.6	38.2	46.7	46.7	55.0	56.6
Maryland	216.3	214.9	204.5	252.2	281.2	302.0	319.2
Massachusetts	215.8	222.3	221.5	263.7	296.0	336.2	363.2
Michigan	450.0	445.8	374.6	485.1	553.0	555.6	559.0
Minnesota	191.7	177.3	157.4	175.2	194.9	195.4	197.8
Mississippi	69.6	64.1	56.8	66.7	69.2	77.7	71.8
Missouri	176.0	165.8	152.9	179.2	205.9	217.3	217.7
Montana	25.4	25.1	20.0	21.8	20.0	21.4	20.0
Nebraska	55.1	49.7	43.6	47.1	50.3	50.3	51.9
Nevada	36.9	34.6	28.1	29.9	35.4	37.5	43.0
New Hampshire	59.6	58.2	56.1	64.2	64.9	71.2	76.6
New Jersey	365.4	320.0	324.2	350.1	433.2	454.6	551.5
New Mexico	43.8	43.2	40.8	41.8	45.1	48.9	47.1
New York	605.5	578.2	549.3	624.7	685.9	739.1	825.5
North Carolina	201.2	191.6	179.4	223.5	246.1	248.6	284.7
North Dakota	23.0	23.9	20.5	21.2	21.6	22.3	19.9
Ohio	438.6	393.9	361.6	429.1	518.4	579.6	566.1
Oklahoma*	NA	NA	NA	NA	115.3	123.8	103.2
Oregon	101.5	92.3	72.2	82.1	88.8	89.9	91.5
Pennsylvania	467.9	425.1	408.2	459.3	512.5	543.0	573.1
Rhode Island	33.7	29.9	27.9	34.7	40.9	45.8	53.6
South Carolina	108.9	98.3	87.0	103.8	126.3	128.4	127.8
South Dakota	20.1	19.6	15.9	18.3	19.1	18.3	19.0
Tennessee	149.2	138.0	130.9	154.7	177.7	191.0	192.8
Texas	607.8	645.4	593.6	576.9	638.9	686.1	614.1
Utah	34.9	52.6	37.8	43.5	43.3	49.4	48.2
Vermont	23.6	24.4	23.6	24.5	25.9	28.3	30.1
Virginia	205.5	207.8	190.3	228.8	261.8	283.0	315.6
Washington	140.3	124.8	101.7	112.3	120.4	133.8	135.9
West Virginia	63.1	63.0	53.8	57.5	64.7	66.7	68.2
Wisconsin	171.4	157.6	138.2	168.3	189.6	189.1	193.1
Wyoming	19.4	18.3	15.4	14.0	13.9	14.8	14.0
Federal Government	18.1	18.9	10.1	19.1	26.3	21.9	17.5
TOTAL	8,761.4	8,444.2	7,754.4	8,924.5	10,128.7	10,888.1	11,140.0



Source: R.L. Polk & Co. Further reproduction prohibited.
Calendar years.
Figures rounded. NA – Not available
*Adjustments for absence of Oklahoma and other states have been made where applicable and are reflected in the chart of total U.S. New Car Registrations.

NEW TRUCKS REGISTERED VS TRUCKS SCRAPPED IN U.S.



Growth of Trucks In Use	
1980	4.1%
1981	2.3%
1982	2.5%
1983	3.1%
1984	5.2%
1985	5.6%
1986	5.8%

U.S. TRUCK DATA:

MILLIONS

New Trucks Registered	Trucks Scrapped
'80-'81 – 2.2	'80-'81 – 1.52
'81-'82 – 2.4	'81-'82 – 1.46
'82-'83 – 3.0	'82-'83 – 1.49
'83-'84 – 4.0	'83-'84 – 1.60
'84-'85 – 4.7	'84-'85 – 2.10
'85-'86 – 4.8	'85-'86 – 2.31

Source: R.L. Polk & Co. Further reproduction prohibited.
As of July 1 each year.

UNITED STATES – NEW TRUCK REGISTRATIONS

Millions of Units

1949	1.0	1968	1.9
1950	1.2	1969	1.9
1951	.9	1970	1.8
1952	.9	1971	2.4
1953	.9	1972	2.9
1954	.8	1973	3.0
1955	1.0	1974	2.4
1956	.9	1975	2.8
1957	.8	1976	3.3
1958	.9	1977	3.8
1959	1.0	1978	3.9
1960	.9	1979	3.1
1961	1.0	1980	2.3
1962	1.2	1981	2.2
1963	1.3	1982	2.4
1964	1.4	1983	3.0
1965	1.6	1984	4.0
1966	1.6	1985	4.7
1967	1.6	1986	4.8

Source: R.L. Polk & Co. Further reproduction prohibited.
Note: Adjustments for absence of Oklahoma and other states have been made where applicable.
As of July 1 each year.

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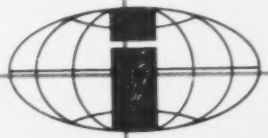

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